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Relationships Between Selected Environmental Characteristics, Neighborhood Type, and School Achievement

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**RELATIONSHIPS BETWEEN SELECTED
ENVIRONMENTAL CHARACTERISTICS, NEIGHBORHOOD
TYPE, AND SCHOOL ACHIEVEMENT**

By

Franklin T. Thompson

A DISSERTATION

Presented To The Faculty Of
The Graduate College at the University of Nebraska at Omaha
In Partial Fulfillment of Requirements
For the Degree of Doctor of Education

Major: Educational Administration

Under the Supervision of Dr. D.U. Levine

Omaha, Nebraska

December, 1996

UMI Number: 9714226

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DISSERTATION TITLE

Relationships Between Selected Environmental Characteristics,
Neighborhood Type, And School Achievement

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ABSTRACT

RELATIONSHIPS BETWEEN SELECTED ENVIRONMENTAL CHARACTERISTICS, NEIGHBORHOOD TYPE, AND SCHOOL ACHIEVEMENT

Franklin Titus Thompson III, Ed.D.

University of Nebraska, 1996

Adviser: Dr. Daniel U. Levine

The primary purpose of this study was to determine if neighborhood and school type help to predict 4th and 6th grade academic achievement above and beyond traditional socioeconomic status (SES) indices. A second purpose was to determine whether the findings of environmental effects research for smaller-size cities differ from studies which investigate larger urban centers. The study also sought to identify potential ways neighborhoods could be meaningfully classified in ways that might aid future research, and the possible presence of schools that succeed despite a profile that says they should not.

Achievement test results of schools (N=61) from two Midwest districts served as the dependent variable, while environmental characteristics gathered from school profile data and the 1990 Census formed the independent variables. Cluster analysis was used to determine neighborhood and school type. Factor analysis and multiple regression analysis were

used to determine the predictive power of environmental characteristics.

Although school and family SES accounted for an adjusted R^2 of .82, neighborhood type nonetheless added a statistically significant 2% ($p=.02$) of the variance explained, with a small effect size of .02, when predicting total achievement for combined districts. While separate analysis of the study's larger district revealed similar results, neighborhood type did not prove to be significant for the smaller district.

Density and housing characteristics were identified as significant variables often overlooked when determining neighborhood type. Three classifications of neighborhoods were identified: Poverty, Transition, and Suburban types. Insufficient data were available to fully assess the effects of school type, but information about SES and neighborhoods made it possible to construct powerful linear predictors of student achievement.

A major finding was the discovery of a "suppressor" variable that allowed a dramatic .52 increase in the adjusted R^2 when it was employed in a multiple regression. In addition, four schools from District Y, and one school from District X were identified as possible Unusually Effective Schools. Implications for practitioners, and additional areas for future research are discussed.

Table of Contents

1.0 Introduction	Page Number
1.10 Scope of the Problem	1
1.20 Statement of the Problem	2
1.30 Directional Research Questions	3
1.40 Definitions	4
1.50 Significance of The Study	6
2.0 Review of Literature	7
2.10 Introduction	7
2.11 An Overview of Environmental Factors	7
2.20 Home Environment	10
2.21 Gaps & Understandings About Home Environment Effects	15

Table Of Contents (Continued)

2.30 Single Parent & Female Head of Households	18
2.31 Gaps & Understandings About	
Single Parent Effects	25
2.40 Parent Education	28
2.41 Gaps & Understandings About	
Parent Education Effects	33
2.50 An Overview of Economics & Related Issues	35
2.51 Socioeconomic Status	36
2.52 Poverty and Malnutrition	41
2.53 Household Income	42
2.54 Gaps & Understandings About	
Income & SES Effects	45
2.60 Race & Ethnicity	48
2.61 Gaps & Understandings About	
Race & Ethnicity Effects	57
2.70 Quasi-Neighborhood Indicators	59
2.71 Population Density	60
2.72 Gaps & Understandings About	

Table Of Contents (Continued)

Density Effects	64
2.73 Residential & School Mobility	66
2.74 Gaps & Understandings About Mobility Effects	71
2.75 Family & Neighborhood Housing	74
2.76 Gaps & Understandings About Housing Effects	78
2.80 Neighborhood Crime	80
2.81 Gaps & Understandings About Crime Effects	83
2.90 The Impact of Neighborhoods	85
2.91 Gaps & Understandings About Neighborhood Effects	99
2.101 Rationale of the Study	104
3.0 Methodology	107
3.10 Review of Research Methods	107

Table of Contents (Continued)

3.20 Sample Population & Historical Setting	113
3.30 Limitations of the Study	115
3.40 Procedure	118
3.50 Null Hypotheses	122
3.60 Dependent & Independent Variables	123
3.70 Design & Data Analysis	124
 4.0 Analysis of Data	 128
4.10 Introduction and Pre-Analysis	128
4.20 Results For District X	130
4.30 Results For District Y	139
4.40 Combined District Analysis	146
 5.0 Discussion And Conclusion	 164
5.10 Restatement of Purpose And Null Hypotheses	164
5.20 Overall Summary of Findings	165
5.30 Addressing The Null Hypotheses	170
5.40 Relation To Previous Research	173
5.50 Implications For Educators And Policy Makers	177
5.60 Implications For Future Research	179
5.70 Conclusion	182
6.0 Appendix Section	183
7.0 References	191

Listing Of Tables

Table I:

Factor analysis of combined districts achievement scores	129
--	-----

Table II:

Factor analysis of selected school data for District X	132
--	-----

Table III:

Cluster analysis of school type for District X	132
--	-----

Table IV:

Multiple regression analysis of District X school SES inputs	134
--	-----

Table V:

Factor analysis of census data for District X	134
---	-----

Table VI and Table VII:

District X multiple regression analyses of school and environmental characteristics with achievement	136
--	-----

Table VIII:

Cluster Analysis of neighborhood type for District X	137
--	-----

Table IX:

Final District X multiple regression analysis of school and environmental inputs, and neighborhood type, with achievement	137
---	-----

Listing Of Tables (Continued)

Table X:

Factor analysis of selected school data for District Y	140
---	-----

Table XI:

Cluster analysis of school type for District Y	140
---	-----

Table XII:

Multiple regression analysis of District Y school SES with achievement	142
---	-----

Table XIII:

Factor analysis of census data for District Y	142
--	-----

Table XIV:

Multiple regression analysis of combined district school SES and suppressor variable, with achievement	145
--	-----

Table XV:

Factor analysis of selected school data for combined districts	145
---	-----

Table XVI:

The Effects of a Major Suppressor Variable for combined district data	148
--	-----

Table XVII:

Cluster Analysis of School SES Variables for combined districts	150
--	-----

Table XVIII:

Multiple regression analysis of various dependent Variables, and school and environment inputs for District Y	150
---	-----

Listing Of Tables (Continued)**Table XIX:**

Multiple regression analysis of school SES,
district, single parent, and poverty kids,
with achievement for combined districts 152

Table XX:

Factor analysis of general census data
for combined districts 152

Table XXI:

Cluster analysis of selected census
data to form neighborhood type for
combined districts 154

Table XXII:

Multiple regression analysis of school
and environmental SES characteristics,
and neighborhood type, with total
achievement for combined districts 154

Table XXIII:

Final multiple regression analysis of
school SES and neighborhood type, with
all achievement factor scores for
combined districts 156

Figures

Figure 1:

Plot of school SES with Total Achievement Factor Score by school district	148
--	-----

Figure 2A:

Plot of Total Achievement Factor Score and school SES by historic neighborhood classification	157
---	-----

Figure 2B:

Plot of Total Achievement Factor Score and school SES by neighborhood type as determined by SPSS Quick Cluster analysis of census SES characteristics	158
---	-----

Figure 2C:

Plot of Total Achievement and school SES by alternative neighborhood classification as determined by SPSS Quick Cluster Method for combined districts	159
--	-----

Figure 3:

Plot of multiple regression predicted scores with actual achievement scores for Districts X and District Y	162
--	-----

Figure 4:

Plot of multiple regression predicted scores with actual achievement scores for combined districts	163
--	-----

Acknowledgements

I would like to thank the following people for their guidance and expertise in helping me complete this project: Dr. Peter Suzuki, Dr. Marilyn Grady, and Dr. Joe Davis. Special thanks goes out to two gifted individuals, Dr. Dan Levine and Dr. Gary Hartzell, for showing me a side of myself I never knew I had. It has been a quantum leap for me to go from the lifestyle of the inner-city housing projects to the language and culture of mainstream educational research.

Thanks also to Dr. John Langan and Dr. Richard Flynn for serving as mentors for me throughout this process, and for having the vision to make needed reforms that aids the education of students from all backgrounds. This experience has been an eye-opener for me, and I know I'll continue to grow as a result of it.

I extent my sincerest thanks to my wife, Beverly, and to our four children for the patience they showed during the times I was not available for them. You are greatly appreciated, and I will never forget your sacrifice. Lastly, I want to thank the Lord for guiding me through this stage of my life, and for not giving up on me during my younger years when so many others did. For that, I will always remain a faithful servant, and hopefully a critically thinking adult.

CHAPTER I

INTRODUCTION

1.10 Scope Of The Problem

Problems in big-city school districts have become more and more evident. Educators have spent an increasing amount of time on academic remediation, discipline, and counseling efforts to help the inner-city child reach equilibrium. This has taken precious time away from the pursuit of higher order learning. The self-esteem of the disadvantaged child demands more attention than ever. Increasingly, students bring problems from home, and schools are having to evolve into something different than that to which they had traditionally been accustomed.

A review of the literature by Zill (1992) reveals that,

Educational professionals have known for a long time that family background is a stronger predictor of academic success than are school or teacher characteristics. The past 30 years have been a series of drastic alterations in patterns of family living in the United States, and these changes mean that a substantial number of youngsters are being born or are growing up in circumstances that put them at risk of low achievement and school failure, (p. 1).

These youth then grow up to be a potential burden on community and social services. The problem is especially notable when speaking of high unemployment, poverty, crime rates, and percentages of people receiving public assistance subsidies and other public services in big-city urban areas (Catterall,

1985, 1988; Levin, 1972a; 1972b; 1972c). Advances in educational approaches as well as in technology and communication during the 1990's, have not eased the burden on schools.

Thus began a movement among educators and schools to become partners with surrounding communities in a joint effort to stem the tide of childhood disadvantage that perplexes so many urban youth. The very joining of community forces itself is a sign of the seriousness of the conditions in many school districts. The study proposed herein is an ecological study of the relationship between selected environmental characteristics, neighborhood type, and achievement. It is research that will test a few hypotheses, while also examining potential missing links that inhibit a better understanding of academic disadvantage.

1.20 Statement Of The Problem

Not enough is understood about the relationship between neighborhoods and achievement. The literature demonstrates that sources of educational disadvantage are not singular, but rather multivariate in nature (Frymier, 1992a, 1992b; Frymier & Gansneder, 1989). There are reasons to believe that many environmental factors influence school and other institutional processes and outcomes. The specific problem this study will address is whether this is true after taking account of variables measuring neighborhood characteristics.

Through the years, findings from the Coleman Report (1966) that family and community influences have a far more reaching impact on student achievement than "school inputs" have been cause for bitter debate among educators. The extent to which school reform does or does not significantly impact disadvantaged children is still not fully understood. There has also been debate over whether it is the place of schools to help mediate the negative effects of family and neighborhood. Philosophical debates wage back and forth, but when all is said and done, few educators find themselves refusing to help a child in need.

Thus comes a second problem educators face: they know what is wrong, but they aren't always sure about what to do to remediate the problem. A need for ecological intervention, the coordination of efforts between the home, community agencies, and the schools is badly needed. Research needed to provide a foundation on which to base decisions is limited and often contradictory.

1.30 Directional Research Questions

I will engage in exploratory research aimed at addressing the following directional research questions:

1. Are there neighborhood or any other non-school influences above and beyond traditional research indices that help us better understand the relationship between environment and academic achievement?

2. What findings from this analysis help to dispute, confirm, or improve upon those gained from previous research conducted in this area?

The formulation of specific research questions, hypotheses, and null hypotheses to be tested will be given in chapter three after I have had a chance to review what the literature has to say.

1.40 Definitions

Throughout the research, certain important ecological terms appear on a regular basis. For purposes of this study, I will utilize information synthesized from several sources to arrive at a working definition for the following: 1 .

Achievement - The act of successful completion of a task or program of tasks. The quality and quantity of a student's work (Merriam-Webster, 1991). In this study, achievement will be measured by standardized achievement test scores.

2. Intelligence - The ability to apply knowledge, manipulate one's environment, and think abstractly as measured by objective criteria. The ability to learn, understand, or deal with new or trying situations (Merriam-Webster, 1991). Although this study does not seek to measure intelligence, a review of the literature reveals that researchers have addressed it as an important concern;

3. Poverty - The state of a person or family which lacks a usual or socially acceptable amount of money or material

possessions (Merriam-Webster, 1991). The current threshold rate of poverty in America is \$14,763.00 for a family of four (U.S. Bureau of Census, 1995).

4. Underclass - A term used to denote a social position lower than any traditional class affiliation. People of the underclass are not only poor, but have a degree of permanency and despair greater than what is implied when referring to a lower class (Levine & Levine, 1996, pp. 13-14);

5. Neighborhood - The institutions and people that occupy a certain geographic area characterized by distinguishing characteristics and common collective history (Merriam-Webster, 1991);

6. Concentrated Poverty Neighborhoods - Areas located in heavily minority and disadvantaged, inner-core areas of big cities which generally rank high on indicators of social problems related with unemployment, drug use, delinquency, dropping out of school, teen-age pregnancy, and violent crime, (Levine & Levine, 1996, p. 14);

7. Household Income - The combined total of adult wages per family unit (Felner et al., 1995);

8. Ethnicity - A large group of people often involuntarily classed according to distinct characteristics such as nationality, language, and religion, beliefs, and customs (Farley, 1995);

9. Race - A division of mankind possessing traits that

are transmissible by descent and sufficient to characterize it as a distinct human type (Farley, 1995; Merriam-Webster, 1991).

10. Socioeconomic Status - An umbrella term taking into consideration multiple indicators of social and economic characteristics including income, social class, occupational status, neighborhood location, interaction across social class and ethnic lines, and disadvantages associated with underclass status (Levine & Levine, 1996).

1.50 Significance of The Study

Aside from the need for this study to help fill a void in the research knowledge base, its findings can help practitioners as they strive to make better informed decisions affecting the futures of young people. As stated by Kukuk, Levine, and Meyer (1978), "Unless social policy deals with the neighborhood-level and institutional-level aspects of educational and other problems in big city poverty neighborhoods, it may have little impact on the long-range situation of the poor and the neighborhoods they inhabit," (p.9). This study will help to fill the research gap, and provide valuable information for school districts at the central administration and policy-making levels. It also provides information on how communities can help themselves.

CHAPTER 2

REVIEW OF LITERATURE

2.10 Introduction

The review of literature is organized in a way that helps the reader to better understand the diversity of environmental effects research. I will begin by looking at single variable and multivariate predictors of achievement, then conclude with studies on the impact of neighborhoods, the main focus of this study. The review is relatively exhaustive. I feel it is important to gain a thorough understanding of single and multivariate correlates of achievement before undertaking a study on the impact of neighborhoods.

The reader will note that many studies will conclude that environmental variables seldom work independently, but jointly, to produce effects that impact human behaviors. Limitations will not allow for an analysis of intervening variables and mediating effects. Such a study would require a complex design, and is an extremely expensive endeavor to undertake. What is provided here is a chance to take one step towards better understanding how neighborhood characteristics influence student achievement. The reader is also advised that the findings of each individual study should not be unduly generalized beyond the specific research population it represents.

2.11 The Impact Of Environmental Factors: An Overview

Any in-depth analysis of the influence of environmental factors on achievement should acknowledge a major study conducted by James S. Coleman and his associates (1966). In an attempt to satisfy educational goals and objectives born of Section 402 of the Civil Rights Act of 1964, Coleman and his team set out to discover which school inputs affect student achievement. Prior to this research effort, it was generally accepted by laymen and educators alike that children failed mostly because of school deficiencies.

When effects of family background were removed from a regression model, Coleman was surprised to find that very little additional variance was explained by school related variables. Of the school variables studied, it was found that the composition of the student body and the characteristics of teachers respectively fared the best. Other variables such as physical facilities, curriculum, and per-pupil expenditures did very little to improve the prediction. Still, school inputs were small in comparison to home and community effects. The major conclusions of the Coleman et al. study were that low-functioning students bring disadvantages with them to school from their homes and neighborhoods, and that these background characteristics share variance with school variables in predicting outcomes.

On a smaller scale, Rhodes and Sizemore (1972) replicated the Coleman study. Even after adjusting for methodological

deficiencies, the results were generally similar to those of the original Coleman Report. The authors found that family and environmental factors significantly correlate with both black and white reading scores. However, family environment had more impact upon white than black scores. Less promising results for blacks are partially explained by the fact that it is harder to predict a variable (reading skill) with a constant (low SES). In addition, Rhodes and Sizemore found that (a) black scores are more impacted by school climate variables than those of whites; (b) teacher characteristics do matter - minorities benefit by taking harder classes which often have the better teachers; and (c) geographic region, as it relates to poverty and modernization, is significantly correlated with reading scores for both groups.

Levine and Havighurst (1992) reported how various researchers who analyze the Coleman data, as well as those who have studied their own data bases, have arrived at similar findings. Since the findings of the Coleman Report, "Researchers are making progress in identifying the specific home environment variables that affect cognitive and scholastic performance, and the ways in which home environment is related to performance at differing stages of development," (p. 126).

A synthesis of the literature by Kifer (1976) led him to conclude that both school and home inputs are equally

important to understanding student achievement. Haggling over how much of the variance is unique and how much is shared has the potential to take our attention away from the real issue: How to remediate academic failure. He concludes that a better effort is especially needed to bolster the education of preschool and elementary school disadvantaged learners.

2.20 Home Environment

There is considerable research on the effects of "home environment" on student achievement. Home environment, however, is a variable that crosses several categories, and large portions of it overlap information contained in other sections of this review. Although much of it deals only indirectly with neighborhoods, an understanding of the literature helps to shed light on how families impact childhood behaviors and study habits.

Olson (1984) identified four "schools of research" for the effects of home environment: (a) the socioeconomic school; (b) the family constellation school, which emphasizes characteristics such as family size and birth order; (c) the British school, which emphasizes parental attitudes and abilities; and (d) the Chicago school, which emphasizes family behavior and parent-child interactions. The reader might note the first two basically represent status concerns, while the latter are more process oriented. This review will attempt to incorporate as much of both as possible.

Palmer (1967) found that high academic motivation and achievement were prevalent among children from small middle-class Protestant families in which the parents were college educated, and the parents practiced moderate levels of control in child rearing. Michelson (1968) found a correlation of moderate strength between high noise level in the home and achievement. Kifer (1976) identified three dimensions of home environment which seem to correlate with achievement: (a) verbal stimulation; (b) activities congruent with the expectations and demands of school; and (c) the general cultural level of the home.

Levine et al. (1970) studied a highly praised inner-city parochial school and concluded that parent supportiveness and family class status - not school inputs or curriculum innovations - were mainly responsible for high achievement among students. Ballentine and Levine (1971) found high multiple regression correlations between three home environment measures and reading level scores for a sample of Anglo-American (.91) and African-American (.70) economically disadvantaged kindergarten students. Slaughter (1975) found that parent-child interaction and the level of parent skills, more than home language usage, determined the achievement of a sample of Anglo, Mexican American, African American, and Yaqui Indian preschoolers.

Touliatos et al. (1978) studied 637 white elementary

students (grades 3-6) from a small southern town regarding the impact of various home environment variables on achievement. Results of this study demonstrate that (a) children from higher social classes perform better than those from lower classes, and (b) children from smaller families score higher than those from larger families. The results also show that boys do less well than girls at the elementary level, and middle children do less well than older and younger children.

Shea and Hanes (1977) reported how a multiple regression analysis of home environment and reading achievement of K-2 graders accounted for a significant portion of the variance. They warn, however, that researchers cannot count on a universal set of generalized environmental correlates. The most significant predictive variables vary as a function of societal fluctuations in families and communities.

Martinez (1981) found that the following home environment variables - verbal interaction, smaller size family, number of hours spent reading to a child, and parental aspirations for the child - best predict achievement when they operate together. Johnson (1982) used the results of three studies he conducted to conclude that while home environment was a poor predictor of grade retention, it was, however, a strong predictor of school performance, especially for children in early grades. Olson (1984) found that (a) hours of maternal employment (negative correlation); (b) family socioeconomic

status; (c) parental feelings about the quality of the school; and (d) self-concept were related to reading and math achievement.

A study by Bloom (1986) found that only .10 of the variance in achievement was actually accounted for by socioeconomic status. Other home environment variables - family work habits, academic guidance and support, stimulation, language development, and academic aspirations and expectations - explained .80 percent of the variance in 4th and 5th grade achievement scores. Patrick (1991) reported how the following factors - higher parent education, a good attitude about reading, amount of reading in the home, a stable family structure, limited television viewing, and the regularity of doing homework - positively correlated with higher social studies achievement.

Levine and Levine (1996) conducted an extensive review of the literature which looks at the relationship between achievement and home environment. A summary of their findings reflecting the British and Chicago (process) schools of thought include:

- The amount and quality of stimulation to infants is key;
- Physical stimulation in the first year of life is key, but it gives way to the need for quality maternal involvement as time progresses;
- There is potential for negative effects when there is either too little or too much stimulation;

- Six variables - academic pressure, academic guidance, language models, activeness of the family, intellectuality in the home, and work habits in the family - have the potential of explaining 60-65% percent of the variance in student achievement;
- The single best predictor of achievement is the amount of reading material in the home;
- Greater parental support, and higher academic levels of the custodial parent appear to be related to higher student achievement;
- Parents who aid children in their language, spatial, reasoning, and expressive skills help their children gain an academic performance edge;
- Status transmission between generations is largely dependent on access to material resources, values and attitude, formal schooling, and cognitive and verbal skills;
- Greater parental coercion and direct control tactics are associated with lower academic achievement, social competence, and behavior of children. This is especially true for girls, and;
- With regard to locus of control, a careful balance between "the child's active construction of his or her own experiences" on one hand, and parental structure on the other should be sought. Most children cannot seem to handle too much of one or the other (pp. 95-102).

Dornsbusch (1986) reported that child conformity to adult control was correlated with a decline in grades. When studying the needs of inner-city African American youth, Taylor et al. (1992) found that a combination of high nurturance and high punishment is related to academic success for low-status Black youth. The worst combination was low nurturance and low punishment. "Although rigid control and high expectations may

seem severe for middle [class] America, such measures may be in the best interest of the child in certain environments, such as high poverty areas," (p. 1). Taylor and his associates also found a negative correlation between child household responsibilities and academic performance.

2.21 Gaps And Understandings About Home Environment Effects

Generally speaking, there is no one set rule or rubric for judging home environment factors. What works for one family or one community may not work for another (Levine, 1988; Shea & Hanes, 1977). There are some common trends, however, that surface when reviewing the literature.

What is known about home environment effects is that process variables such as a supportive home and involved parents are highly correlated with achievement (Kifer, 1976; Levine & Havighurst, 1992; Martinez, 1981; Patrick, 1991; Slaughter, 1975). The quality of the parent-child verbal interaction is very key (Levine & Havighurst, 1992; Martinez, 1981; Patrick, 1991). The earlier quality interaction takes place (i.e.- infancy) the better the results. This appears particularly true with mother-child, or nurturing parent-child interaction (Levine & Levine, 1996; Slaughter, 1975).

The higher the academic expectations of parents, the higher the achievement of students (Ballentine & Levine, 1971; Bloom, 1986; Kifer, 1976; Levine & Levine, 1996). Even more important is the amount of substantive reading material in the

home, and the willingness on the part of parents to role model appropriate reading behavior (Kifer, 1976; Levine, 1988; Levine & Havighurst, 1992; Levine & Levine, 1996; Martinez 1981).

The language models of the home have a great impact on the reading ability of children. Parents who provide large amounts of positive role modeling enhance their child's chances for success (Bloom, 1986; Levine & Havighurst, 1992; Martinez, 1981; Patrick, 1991). The intellectual tone of the home as set by the parents is of great importance. The higher the level of parent education and skills, the better chance for the success of their children (Levine & Havighurst, 1992; Levine & Levine, 1996; Palmer, 1967; Patrick, 1991; Slaughter, 1975).

The literature appears to be saying that too much or too little control tactics and techniques on the part of the parent negatively affects achievement (Dornsbush, 1986; Levine & Havighurst, 1992; Palmer, 1967;). A balance of student self-directedness on one hand, and parental structure on the other apparently accentuates students' performance. The literature does not, however, say what that balance should look like.

Status type variables are not often utilized in home environment studies. There are, however, a few reports that do address them. Larger family size apparently has a negative

impact on achievement (Martinez, 1981; Palmer, 1967; Touliatos, 1978). In addition, socioeconomic status and achievement are positively correlated (Levine & Havighurst, 1992; Levine & Levine, 1996; Olson, 1984; Toutiatos, et al, 1978). However, process behaviors that accompany class status could potentially mediate the effects of status variables (Bloom, 1986).

The gaps that exist in the literature are due mostly to the fact that single studies are not enough to substantiate a finding. Areas that need additional research include:

- Extended hours of nurturing-parent employment appear to negatively impact early child achievement (Olson, 1984);
- High activity and noise levels in the home may detract from student achievement (Michelson, 1968);
- Low self-concept possibly correlates with lower grades (Olson, 1984);
- High amounts of household chores and family responsibilities might negatively correlate with student achievement (Taylor et al., 1992);
- The possibility that over-stimulation of infants and toddlers by parents could have a negative effect on achievement (Levine & Havighurst, 1992);
- The belief that not all cultures and ethnic groups respond the same to parental attempts of guidance and control (Dornsbusch, 1986), and;
- Evidence on the one hand that gender makes a difference in achievement (Touliatos, 1978), contradicted by other data indicating that it doesn't (Feingold, 1988; Levine & Havighurst, 1992).

Although home environment variables by their very nature

are more process than status oriented, a better understanding of both is needed. Studies on the interaction between the two are few. Because of the way census data are collected, aggregate neighborhood data tend to assess status. This may not be cause for great alarm, however. It may very well be that a high correlation exists between the two; that one variable does not exist without the presence of the other. Future research will need to confirm or disconfirm this conclusion. In any case, current research suggests that both ways of looking at home environment can be a reliable predictor of student achievement. Lastly, more sophisticated methods that account for mediating factors need to be built into future research (Levine & Levine, 1996; Levine & Havighurst, 1992).

2.30 Single-Parent And Female-Headed Households

One might be tempted to automatically assume that the absence of a parent would negatively impact the achievement of children from that household. However, there is research to support both this position and its opposite. A review of the literature by McDermott (1990) indicates that research has not conclusively identified effects single-parent homes on student academic achievement or on learning disability program placement.

Some studies are in support of a relationship. For example, Smidchens and Thompson (1978) report that students

from two parent families tend to record higher achievement scores than do students from one parent families with greater impact on students in the lower ranges of the socioeconomic scales. " The differences in reading comprehension between two-parent and one parent family organization was greater for black students than for white students," (Thompson & Smichens, 1979b, p. 1).

Results of a study by Touliatos, et al. (1978) demonstrate that children living with both natural parents do better than those who do not. Sources from the Institute for Development of Educational Activities (1980) looked at 26 schools from 14 different states, and found that single parent family children (a) tend to qualify more often for subsidized lunches; (b) change addresses more often; (c) have more problems with absences, truancy, and tardies; (d) visit in-school health facilities more often; (e) are involved with more disciplinary actions; and (f) drop out of school more often than their two-parent counterparts. Duncan, Brooks-Gunn, and Klebanov (1994) were able to detect significant behavior problems among 5 year-olds as a result of a change from two-parent to one-parent family arrangements.

A study by Dawson (1981) revealed that children from one-parent households have lower levels of academic and emotional development, as well as lower reading comprehension levels. Other findings include: (a) black one-parent children have

lower achievement than their white counterparts; (b) boys are more negatively affected in their "acting out" behaviors as a result of a divorce than girls; (c) reduced income is a factor in the probability of daughters dropping out of high school; and (d) the father's role makes a difference in children's behavior, especially in the case of boys.

Southworth (1984) found that single-parent children demonstrate lower math & reading academic achievement at a statistically significant level, poorer classroom behavior in certain areas, and more emotional instability than children from two-parent families. Shreeve et al. (1985) studied a homogeneous population of 7-12 graders and reported that their findings "dramatically confirms" a negative relationship, and that these findings, "...Are so clear-cut as to suggest that the time has come for teaching and administrative strategies targeted directly to children of single parents," (pp. 2-3).

Nock (1988) cites literature showing that adults who come from single-parent homes (a) had less success in school; (b) have lower occupational prestige; and (c) earn less in wages than adults who come from two-parent families. An analysis by McCartin and Meyer (1988) showed that the traditional family constellation with two parents was likely to produce teens with higher grade point averages (GPA) and plans to attend college, as opposed to modified home or single parent children. Gelbrich and Hare (1989) found that the school

achievement of gifted students is negatively affected if they come from a single-parent household. Apparently, natural talent did not mediate the negative effects associated with single parenthood, especially in the case of gifted boys.

Zimilies and Lee (1991) studied children of intact, single-parent, and remarried families and found that (a) students from intact families attained higher achievement; (b) single-parent and remarried children had similar achievement results; (c) the risk of dropping out of school is decreased for students in a one-parent family if the parent is of the same gender; and (d) the risk for adolescent drop-out increases if an opposite-gender adult attempts to invade the privacy of a like-gender, single-parent home arrangement with thoughts of marriage. This holds true for both sexes, but is especially notable for daughters when their mothers seek to remarry.

According to the Zimilies and Lee study, males drop out of high school more frequently than females when they live with a single mother. The reverse is true when male children live with a single father. Featherstone et al. (1992) also studied students from different family arrangements and found that on every outcome (GPA, attendance, citizenship, and behavior) groups could be rank-ordered with children from intact families always performing the best, followed by the remarried group, then children from single-parent families

performing the worst.

A few studies indicate that the effects of single-parenthood may be limited. For example, Milne et al. (1983) found that achievement scores are lower for children of one-parent compared to those from two-parent homes. "The effect appears to work primarily through the lower income of one-parent homes and its subsequent variables in the [regression] model...Black children from one-parent homes [however] have higher achievement if the mother works, mediated to a large extent by increased family income" (p. 1). Chalker and Horns (1986) looked at the relationship for grades 2-5 reading scores. Negligible overall results were found. The fact that fifth graders showed a moderate relationship was explained by the possibility that upper grade teachers are not as conscientious as lower grade teachers in improving reading achievement.

Mulkey et al. (1992) conducted a path analysis and concluded that,

The effect of single parent upbringing...is small...that the differential effects...are transmitted through the intervening variables of race-ethnicity, economic condition, and behavior. Living in a father-absent household has no direct effect on scores on vocabulary or science tests and only weak effects on grades. Living in a mother-absent household has a small direct effect on scores on science tests and on grades. Students from one-parent households have scores on vocabulary tests that are about .30 standard deviations lower, but this difference seems to be explained entirely by differences in race-ethnicity and the

education level of the parents," (pp. 61-62).

Several studies find mixed results. For example, Zakariya (1982) reports that family income and student sex had a greater effect on overall K-12 achievement than did the number of parents in the home. She also states, however, that, the number of parents in the home is relatively more important in the elementary grades than in high school. Mulky and Morton (1991) report that the effects of father absence are not felt equally among girls and boys. The effects are more negative for boys, while in some cases somewhat positive for girls when looking at math and science results. Apparently, girls in female-headed households have less sex role and societal stereotyping to overcome.

Most studies look at either achievement or intelligence. Jenkins (1987; 1988) studied the correlation between achievement and "creative thinking" (divergent thought processes). She found no relationship, especially for a theory that might state that single-parent children become more creative as one means to cope with family stress. In this study, however, the children of single parents did score significantly higher on the variables of "academic orientation", "broader cultural and extra-curricular orientation", and "origence" (resistance on the part of children to be guided).

Hetherington et al. (1981) found that when looking at

tests of intelligence and aptitude, differences between groups of one-parent and two-parent family children are usually small and decrease when socioeconomic status is taken into account. When looking at GPA based on teacher assigned grades, however, there is a larger difference between the two groups. The authors concluded that neither innate intellectual deficiency nor single-parenthood is the major cause, but rather teacher stereotypes of single-parenthood.

Other possible intervening variables such as less efficient study habits, attendance problems, and disruptive behaviors were identified by the Hetherington study as possible home environmental characteristics that negatively accentuate the effects of single-parenthood. A potential problem with this line of thinking is the issue of definition. One might ask, isn't parenting in effect the teaching and modeling of positive behaviors and values? Because the two are closely related, it may not be possible to cleanly separate disruptive behaviors from quality of parenting.

Roddy (1984) reports that, "The diversity among research findings suggests that while, as a group, single-parent children tend to have more behavioral problems...the likelihood of any particular child having cognitive or behavioral problems depends upon the interaction of many factors," (p. 4). In other words, a finding that family disruption can lead to negative effects doesn't necessarily

mean that the academic careers of every disadvantaged child is doomed. An analysis by Roy and Fuqua (1983) found that adequate social support - defined by such things as parent involvement, mentoring, counseling, etc. - has the potential to mediate many of the potential negative effects of single-parent status.

Levine and Havighurst (1992) found numerous studies in support of both sides of the debate. They speak of complications in methodologies, difficulties with interpretation, and "crude indexing of family processes". They urge that future research take into consideration variables such as gender, race, educational opportunities, the duration and cause for the separation, the age of the child, comparing achievement scores before and after the family status transition, the quality and quantity of interaction with the remaining parent, and especially family income and social class. The researchers warn, however, that, "...Father absence lowers the social class of many families that become female headed; in this case, controlling for social class may incorrectly eliminate a true relationship," (p. 128).

2.31 Gaps And Understandings About Single-Parent Effects

What we know about the impact of single-parenthood on childhood development and academic achievement is that findings are conflicting, and that there is considerable disagreement among researchers (Levine & Havighurst, 1992;

Levine & Levine, 1996; McDermott, 1990; Mulky & Morton, 1991; Zakariya, 1982). Some findings are in support of a clear and significant negative relationship (Featherstone et al, 1992; Milne et al, 1983; Shreeve et al, 1985; Smidchens & Thompson, 1978, 1979b; Touliatos et al, 1978; Zimilies & Lee, 1991). In addition, other studies find a relationship, but warn that other socioeconomic variables (i.e.- income, parent education, race) could potentially be transmitting intermittent effects (Hetherington, 1981; Levine & Havighurst, 1992; Levine & Levine, 1996; Mulkey et al, 1992; Roddy, 1984). It becomes complicated, however, when controlling for intervening variables because of the potential for eliminating relationships that probably should not be separated (Levine & Havighurst, 1992; Levine & Levine, 1996).

Some studies have found that the differences between both populations are too unreliable and inconsistent to be statistically significant (Chalker & Horns, 1986; Hetherington et al., 1981; Mulkey et al., 1992; Zakariya, 1982). Other studies have found a relationship for certain kinds of populations, but not for others (Dawson, 1981; Milne et al., 1983; Mulky & Morton, 1991; Thompson & Smidchens, 1979b; Zakariya, 1982).

Several studies (Corporate Sources/Institute for Development of Educational Activities, 1980; Dawson, 1981; Duncan et al., 1994 Southworth, 1984; Levine & Havighurst,

1992; Levine & Levine, 1996; Roddy, 1984) report a relationship between single-parent homes and various behavior, emotional, and poverty related problems of children. A few studies (Dawson, 1981; Thompson & Smidchens, 1979b; Milne et al, 1983) report that single-parenthood has more potential to negatively impact minority and poverty children the most.

In addition, some research hints at how gender can make a difference. On one hand it may be that boys are more affected by single-parent homes than are girls, especially if the father is the absentee parent (Dawson, 1981; Mulky & Murton 1991; Zimilies & Lee, 1991). On the other hand, girls might be more negatively affected by factors of reduced income as a result of single-parenthood homes (Dawson, 1981), or if the single-parent is male (Zimilies & Lee, 1991).

Gaps exist in the literature mainly because research of this topic is complicated, and not enough studies have been conducted. Areas needing more research include possibilities that:

- Same-sex, single-parent home arrangements are less damaging to students than different-sex, single parent arrangements (Zimilies & Lee, 1991);
- Male students are more negatively affected than females (Dawson, 1981, Mulky & Morton, 1991);
- The achievement results of children from remarried and single-parent families are not significantly different from one another (Zimilies & Lee, 1991);
- Giftedness does not significantly compensate for negative effects of single-parenthood;

- On one hand, student creativity is not enhanced by the need to fill a void because of an absent parent, and on the other, an independent, more broader academic and cultural orientation is fostered (Jenkins 1987, 1988);
- Teacher stereotypes transmit an intervening effect on how they view and grade students from single-parent homes (Roy & Fuqua, 1983);

There are certain steps that can be taken to help limit and remediate negative effects of single-parenthood (Hetherington, 1981), and;

- Negative effects that are associated with single-parenthood persist into adulthood (McCartin & Meyer, 1988; Nock, 1988).

Despite the disagreement, the overall literature appears to be saying that children from two-parent homes, for one reason or another, generally perform better both academically and behaviorally. While single-parenthood by itself does not cause academic failure, there is some evidence to support a belief that intact families do provide support systems that help children through tough transition periods. The effects of single-parenthood are ultimately situational, however. It is very probable that the quality of parent-child interaction frequently may be more influential than the actual status of single-parenthood per se. "Therefore, the only accurate answer to the question of whether single-parentness is harmful to a child's academic or behavioral development may well be, 'It depends'," (Roddy, 1984, p. 4).

2.40 Parent Education Level

A majority of the literature which looks at the impact of

parent education on student achievement points towards a positive relationship. The most important pieces of that literature will be presented in this review.

Pearson (1969) demonstrated that correlations between Hawaiian preschoolers and level of parent education can be observed as early as 2.5 years after birth. Levine & Levine, 1996, as well as others (Hebbeler, 1985; Levine & Havighurst, 1992; Pearson 1969), have established the fact that a child is impacted most by academic stimulation during the early years of development. "The power of early achievement to predict later achievement is...a common place finding," (Hebbeler, 1985, p. E7). Researchers associated with the U.S. Department of Health Services Administration (1976) studied 6,768 age 12-17 adolescents and found that the educational level of the parent who was considered to be the head of the household was the variable most highly correlated. Adolescents whose parents had received more years of formal education performed better on tests than other youth. Felner et al. (1995) found that children from homes in which neither parent had a high school diploma exhibited worse socio-emotional and academic adjustment than other youth.

Researchers associated with the Illinois State Board of Education (1983) conducted a decade-long comparison study of school and home factors related to achievement for high school juniors and found that of family variables investigated,

father's education, mother's education, and the amount of talking about school were strongly correlated with student achievement. Eagle (1989) conducted a study utilizing the 1980 High School and Beyond Senior Cohort data, and discovered that parent education and family affluence were the two main determinants of post secondary attainment.

Hersch (1988) found a negative relationship between mother's education level and the rate of student retention rates. In a study that looked at the tracking policies of two adjacent suburban school districts, sources from the American Educational Research Association (1990) report that, "Parents with baccalaureate and graduate degrees succeeded much more often than non-college graduates in having their children placed in academically challenging mathematics ability groups, putting them on a track of sequential courses that would lead to better preparation through the high school and college years," (p. 17).

Gorman and Yu (1990) studied 1985-86 National Assessment of Educational Progress data on 7th and 11th graders. They report that white students whose parents graduated from college scored significantly higher than those whose parents did not finish high school or receive a high school diploma. This finding held across both sexes, but was not significant for African Americans and Hispanics. A meta-analysis of 77 studies carried out on the measures of science achievement

between 1980-91 by Debaz (1994) revealed that father's education, mother's education, plans and aspirations, hours of homework, and availability of educational items at home (an indicator of parent education) positively correlate with student achievement, especially when isolating males and whites.

A growing portion of the literature appears to be saying that the sex of parents interacting with other variables makes a difference on some measures of student success. "An especially significant factor in illiteracy and poverty is the education level of the mother," (Corporate Sources/Education Writer's Association, 1988, p. 2). Grawe (1979) found that mother's status along with household income best predicted academic success for preschool children from disadvantaged backgrounds. Bell and Starkey (1974) found that the mother had more influence on a child's math and reading ability than did the father, although the education of both parents correlated highly with math and reading. The authors maintain that by and large, mothers are still the primary care-givers and nurturers of younger children.

Haertel (1979) discovered that when looking at race, poverty, and maternal education as independent variables, the latter had the greatest impact on achievement. Hebbeler (1985) found out that mother's education and family income were better predictors of high school achievement than sex, race,

and Head Start preschool participation. Ensminger and Slusarcick (1992) conducted a longitudinal study of African American dropouts and found that mother's educational level was the most significant factor. The authors of the study add that poor early year performance, aggressive behavior, and poverty works in concert with mother's education to explain most of the variance.

Lang et al. (1988) studied the 1986-87 National Collegiate Championship football team from the University of Miami and found that mother's education was one out of six variables that were important predictors of academic success (defined as a 2.0 or higher grade point average). In a social mobility study, Snarey and Vaillant (1985) discovered that mother's education, mother's occupation, and boyhood ego strength explained most of the variance in predicting success for inner-city adult men. Carpenter and Hayden (1987) report that mother's education was the most important variable predicting whether Australian girls attended single-sex or coed schools.

There is limited research which finds a stronger relationship between father's education level contrasted with mother's education and child outcomes. An early study by David et al. (1961) looked at the relationship for heads of households (75% male subjects) and found that education of the father was the most powerful predictor of children's

education. Anglum et al. (1990) found that level of father's education is the strongest predictor of reading for grades 1-6. The amount of preschool reading done for children, and the variety of print materials in the home were also important correlates. A study on the occupational plans of blacks and whites by Picou (1973) reveal that father's education had a substantial impact on all control groups except rural blacks. Finally, Osborn (1971) states that it is the education of the same sex parent that correlates best with achievement, attitudes, and expectations, and that, "The popular assumption of a more powerful influence of the mother in the development of her children is not supported [by this particular study]," (p. 167).

2.41 Gaps And Understandings About Parent Education Effects

It is safe to say that the education level of the mother or nurturing parent is highly correlated with student achievement (Bell & Starkey, 1974; Corporate Sources - Education Writer's Association, 1988; Grawe, 1979; Haertel, 1979; Hayden, 1987; Hebbler, 1985; Hersch, 1988; Lang, 1988; Slusarick, 1992; Snarey & Valliant, 1985;). Mothers are highlighted in these studies probably because they are the primary care-givers of young children (Bell & Starkey, 1974).

Many studies point to the educational level of both parents as being equally important (Corporate Sources - American Research Association, 1990; Corporate Sources -

Illinois State Board Education, 1983; Corporate Sources - U.S. Dept. Health Services Administration, 1976; Debaz, 1994; Eagle, 1989; Felner et al., 1995; Gorman & Yu, 1990). There is also some evidence that the impact of this relationship might last into adulthood (Corporate Sources - American Educational Research Association, 1990; Snarey & Valliant, 1985).

Fewer studies report that the education level of the father (Anglum et al., 1990; David et al., 1961; Picou, 1973) or head of the household (Corporate Sources - U.S. Dept. of Health Services Administration, 1976) is the dominant factor. We know that children who experience achievement success at early developmental stages are more likely to be successful later in their academic careers (Hebbler, 1985; Levine & Havighurst, 1992; Pearson, 1969;). In addition, a couple of studies hint at the belief that white males are most impacted by higher levels of parent education (Debaz, 1994; Gorman & Yu, 1990).

As was true in previous sections of this review, the gaps in parent education literature are mainly due to the limited amount of studies conducted. For example, more research must be done to be understand the impact of race and ethnicity. Other areas that need to be further examined include possibilities that:

- Less parent education increases the likelihood of socio-emotional maladjustment (Felner, 1995);

- The education level of the same-sex parent is the main parental determiner of achievement (Osborn, 1971), and;
- A relationship can be found as early as 2.5 years of age (Pearson, 1969).

Parent education by itself probably does not explain all of the variance of the relationship with academic achievement. Other factors such as income level, aggressive behavior, early performance, amount of reading material in the home, and age at which parent-child interaction begin, appear to all work together to produce the effects (Ensminger & Slusarick, 1992). Although a measure of this statement can be validated by studies found in other sections of this review, more research in the parent education domain is needed to substantiate this conclusion.

A careful review of the literature allows us to conclude with some sense of certainty that although parental education doesn't directly cause positive student academic performance, it at least opens the door for those things which could in fact cause that relationship (i.e. more academic stimulation, more emphasis on homework). In addition, we might conclude that the parent who stays home during the early years of child development will have the greatest share of that impact.

2.50 An Overview of Economic Status & Related Variables

Much has been written about the overall relationship between various economic and social class indicators, and the

achievement of students. Researchers, however, do not always measure the same things when studying socioeconomic status (SES). White et al. (1993) discovered that correlation coefficients of various studies which look at the relationship range anywhere between .10 to .80, depending on the definition used. For purposes of this research, this writer will define SES similar to that outlined by Levine and Levine (1996) as listed in section 1.40.

The first portion of this section will deal with studies that emphasize a multiple indicator definition of socioeconomic status. It will then be succeeded by an examination of studies on general poverty and malnutrition, then followed by studies that look at income as a lone SES variable.

2.51 Socioeconomic Status

The relationship between socioeconomic status (SES) and school performance is well documented. One of the earlier systematic SES efforts was done by Lynd and Lynd (1929) who report that, "Potent among the determining factors in this matter of continuance in school is the economic status of the child's family," (p. 185). While a high incidence of junior and high school dropout was partially blamed on limited academic skills and limited study time, the biggest factor in the study by the Lynds was the fact that working class students were ashamed of their clothing and other outward

manifestations of their poverty. "Thousands of studies [since the Lynds'] have documented the close relationship between social class and achievement in the educational system," (Ornstein and Levine, 1989, p. 17). Limited time and space will not permit a review of a large number of studies. However, the most significant portions of the literature will be reviewed.

For example, Summers and Wolfe (1976) studied 1,896 students from 150 public schools and concluded that, socioeconomic background of the student was an important factor which determined what the student achieved through the school years. McCrossan (1966) found that the home environment of lower class children contributed to reading retardation. The reading habits of low income parents - described as more reading for sports, entertainment and the viewing of pictures - is often emulated by their children.

Rawlings and Jensema (1977) found that the educational achievement of the hearing impaired is related to the economic levels of their families. Smidchens and Thompson (1978) and Thompson and Smichens (1979b) found that family disorganization had a greater negative impact on the achievement of students from lower classes. Morgan (1979) studied data gathered from three decades and found that social class and other socioeconomic measures (race, education, income, density, and housing) were statistically significant

predictors of achievement. Lower social class measures were able to explain 67 percent of the variance. Wright and Dhanota (1980) surveyed students from a prominent Canadian public school district, and found that the higher the category for a parent's occupation, the more likely students would be enrolled in higher levels of a particular course of study.

McCartin and Meyer (1988) investigated how the combination of low SES and family disorganization often work together to produce a double disadvantage for inner-city youth. Drazen (1992) found family income, non-minority status, parent education, and time spent on homework to be the most potent factors in predicting high school reading and math achievement. An analysis by Ricciuti et al. (1993) indicated that maternal ability level, maternal education, and family poverty status showed consistent significant correlations with the "school readiness" and achievement level of 6 and 7 year old Black, Hispanic, and Caucasian children.

A review of the research literature by Levine and Levine (1996) reported the following findings:

- Most studies have been performed with crude and singular indicators. Future studies must take into account multiple home, neighborhood, and social class indicators;
- Concentrated poverty status is a main reason for academic failure in many big-city schools, regardless of the school's racial and ethnic make up. Achievement scores in these type of schools are "highly predictable" based on SES data;

- Both reading and math achievement are highly correlated with socioeconomic status and ethnicity and racial group membership. Results from schools with high concentrations of underclass minority students are "distressingly low";
- The percentage of lower minority and other poor disadvantaged students enrolled in a particular school has an affect on the achievement of those students. Not exceeding a 35-40% enrollment threshold appears to have positive benefits;
- Concentrated poverty schools carry a higher risk and safety factor, especially during recent times, that impedes the learning climate of the entire school. Depending on local politics and policies, these schools sometimes engage in the practice of hiring less qualified educators;
- In the United States, proficiency in advanced math achievement has become an Asian student and White, middle-class, male student phenomenon;
- The reading comprehension and math problem-solving scores of minority students attending suburban schools are noticeably lower than their non-minority suburban peers, and only slightly higher than their inner-city minority counterparts. However, many minority students may have spent formative years in inner-city schools and subcultures before making a change to more positive neighborhoods;
- Students from low SES, minority, and concentrated poverty neighborhoods are more likely to drop out of school than students of higher SES and non-minority backgrounds;
- High SES, non-Hispanic Whites and Asians who are in a high school honors track, are most likely to attend a four-year college, especially a private one. Colleges with higher student income levels also have students with higher SAT scores. Students at junior and community colleges have lower family incomes and lower test scores.

Bowey (1995) tested Australian first graders for phonological sensitivity (i.e.- recognition of the connection

between phonics and spelling) and found convincing evidence of differences in preschooler's abilities as a function of paternal occupational status. Differences remained robust even with performance IQ and verbal ability effects statistically controlled. "It is likely that [older] children from low SES backgrounds may experience difficulties in comprehending the relatively decontextualized language of written material," (p. 486). Bowey found that the fourth grade is about the time when educators begin noticing the greatest amount of deceleration in the reading performance of low SES children, even with those who make a good early start.

Although rare, a study that does not report prominence in the role of SES surfaces from time to time. A synthesis of literature by Slaughter and Epps (1987) finds that although the relationship between SES and achievement is positive and statistically significant, it is noticeably less dramatic for blacks than the results for whites. They report a lack of studies that assume a "macro, social-structural approach", and conclude that more primary-school level case studies on the effects of parental involvement in the academic lives of black youth are needed.

White et al. (1993) performed a meta-analysis of various SES studies and concluded that those using aggregate data show a much stronger combined relationship (.73) than those utilizing individual data (.22). Although the latter is still

a finding of significance, the authors warn against drawing blanket conclusions about all members of a population as a result of the findings of macro SES studies. Perhaps what White and his associates stumbled upon are the intervening effects of school and neighborhood type, which might partially explain why aggregate data showed more of a relationship.

2.52 Poverty And Malnutrition

Few would argue against a belief that malnutrition has an adverse effect upon general childhood development. Its specific effect on achievement, however, has not been well documented. The few studies that do exist find a negative correlation. Maynard (1977), for example, examined a longitudinal data base which studied third through eighth grade student achievement and found a direct link between nutrition and test scores.

Farrel (1978) reviewed several foreign studies and found that, "...Children suffering malnutrition before the age of six months tend to suffer lasting effects when assessed for motor behavior, adaptive behavior, language and personality... Malnourished children are more susceptible to all kinds of infection, which can produce permanent defects in hearing, sight and motor functions," (pp. 13-14). He contends that research has yet to explore the effects on middle class children from more industrialized societies, and how their intake of larger quantities of junk food might impact

achievement.

Grantham et al. (1994) studied severely malnourished children from Jamaica over an extended period and showed that an experimental group which received an early intervention treatment had markedly higher vocabulary and achievement scores at 7, 8, 9, and 14 year intervals. The authors of the study controlled for social background, home environment, and hospitalization, yet still were able to find strong relationships. "The implications are that psychosocial stimulation should be an integral part of the treatment of severely malnourished children," (p. 437).

Pollitt (1994) studied research from Third World countries and maintained that (a) there is a link between nutrition induced anemia and levels of mental and motor development; (b) both poor nutrition and concurrent illness negatively impacts school performance; (c) supplemental nutrition had positive effects on child development; and (d) increased medical treatment increased educational competence. The author contends that iron deficiency anemia among minority and disadvantaged children is a problem greatly underestimated in more developed countries.

2.53 Household Income

Most of the research on low household income status shows a negative relationship with achievement in one form or another. Suchman et al. (1968) surveyed 6,455 students and 400

teachers from 8 secondary schools and found a significant relationship between the educational plans and aspirations of students from low income families on one hand, and the objective social class position and the subjective class identification of the student on the other hand. According to Shaw (1979), low income is the single most significant factor in accounting for the probability of both Black and White females dropping out of school.

A synthesis of research literature by Carta (1991) revealed that low-income children from inner-cities are vulnerable to school failure even before entering school. Researchers associated with the Health Services Administration (1976) found youths from homes with relatively high family incomes achieved higher scores than those from families with lower incomes. Thompson and Smichens (1979a) and Thompson, et al. (1979) found that family disorganization (i.e.- poor supervision, poor role modeling) appear to have a greater impact on children from the poorer ranges of the socioeconomic scales.

Chambers (1987) found that family income has a strong influence on both sub and composite scores of the ACT standardized achievement test. Gallagher (1993) found a relationship between household income and the pass rates of high school students taking a proficiency test. Menacker (1990) analyzed the standardized test scores of a large

northern, urban school district and found strong support for the hypothesis that student income level, irrespective of race and ethnic distribution, is the critical variable to be addressed in student school assignment policy.

Ogletree and Ujlaki (1988) studied high school dropouts and found that although such variables as dislike for school, suspension, pregnancy, and low academic skills play a major role in academic failure, the main determinant was poverty and social economic background. Hersch (1988) reports a significant relationship between participation in the free lunch program and the incidence of grade retention. Boals et al. (1990) and Felner et al. (1995) found that poverty had a significant negative impact on the achievement and cognitive advancement of rural children.

A few writers question the over-reliance on poverty as the sole determinant of academic failure. For example, a review of the literature by Grawe (1979) found that household income, together with the socioeconomic status of the mother, are key predictors of abilities of disadvantaged preschool children. Levenstein (1989) cites research to support the conclusion that poorly educated and low motivated parents are more to blame for academic failure than poverty. This conclusion is supported by Sigmon (1988,) who in addition contends that inner-city schools, often overcrowded and poorly equipped, must also take a small portion of the blame.

Brooks-Gunn et al. (1993) and Duncan, Brooks-Gunn, and Klebanov (1994) reported how most developmental studies, which are unable to obtain detailed measures of household income, often rely on socioeconomic proxies (i.e.- single parent, parent education, occupational status, ethnicity). On the one hand, SES proxy studies provide a broader picture of poor families. Income as a single variable, however, has been shown to be a far more powerful correlate of both IQ and achievement, especially when considering early childhood.

The Duncan et al. (1994) findings show that effects of persistent poverty on early IQ (age 5) are twice as large as the effects of transient poverty. With regards to behavior problems, the effects were 60-80 percent higher. The report also shows that negative relationships which existed between female-headship and IQ disappeared once family income was entered into the equation, suggesting that lower-incomes of female headed families becomes more important than single-parenthood as a variable to isolate.

2.54 Gaps And Understandings About Income & SES Effects

A review of the literature tells us that there is a wide variety of findings from socioeconomic and poverty research. This diversity of findings is due in part to the lack of a standardized rubric from which to define the factors being considered (Brooks-Gunn et al., 1993; Duncan et al., 1994; Levine & Havighurst, 1992; Levine & Levine, 1996; White et

al., 1993). Despite the differences in findings, however, there are some clear trends that emerge from the literature.

The greater the poverty and lower the social status, the greater the chances are for academic failure among children (Bowey, 1995; Bruce, 1979; Drazen, 1992; Levine & Havighurst, 1992; Lynd & Lynd, 1929; McCartin & Meyer, 1988; McCrossan, 1966; Ornstein & Levine, 1989; Rawlings & Jensema, 1977; Smidchens & Thompson, 1978; Summers & Wolfe, 1976; Thompson & Smidchens, 1979b; White et al., 1993; Wright & Dhanota, 1980). Even stronger results can sometimes be found if one decides to look at income as a lone determinant of achievement, as opposed to examining broader social class or socioeconomic influences (Boals et al., 1990; Carta, 1991; Corporate Sources - Health Services Administration, 1976; Felner et al., 1995; Hersch, 1988; Ogletree & Ujlaki, 1988; Suchman et al., 1968; Shaw, 1979; Thompson et al., 1979; Thompson & Smidchens, 1979a). Although some studies which isolate income show stronger results than more general SES studies, both types help to fill the knowledge gap and are worthy of pursuit if the methodology used is sound (Brooks-Gunn et al., 1993; Duncan et al., 1994; White et al., 1993).

The limited number of "poverty studies" hint at an association with both social and academic dysfunctioning. The poorer the family, the greater the chances for social disorganization, which is seen as a determinant of poorer

study habits and lower academic performance (Levine & Havighurst, 1992; Levine & Levine, 1996; McCartin & Meyer, 1988; Smidchens & Thompson, 1978, 1979; Thompson & Smidchens 1979a, 1979b). The concentrated poverty and neighborhood effects literature (refer to section 2.90) backs up these findings.

A few studies (Drazen, 1992; Grawe, 1979; Levenstein, 1989; Sigmon, 1988; Skodak & Skeels, 1949) report that other intervening variables such as low-motivated parents, the status of the mother, lack of appropriate attention from primary care givers, unruly student behavior, overcrowded schools, and non-progressive schools work in concert with poverty to create academic failure. Future studies with designs more complicated than the one employed in this study will need to address the disentanglement of variables. The research on the impact of poverty also points to a need for studies which discriminate between being poor from "thinking poor". We must ask ourselves why some people from poor families and neighborhoods succeed despite their handicap. We do not have a good enough understanding of what some of the interventions look like. In addition, the concept of poverty thresholds has been identified, but there is a need for more research in this area.

The malnutrition effects literature indicates a strong positive correlation with student achievement and the

necessary health needed to succeed in the classroom (Farrel, 1978; Grantham et al., 1994; Pollit, 1994). The few malnutrition studies that have been conducted have mostly come from Third World countries. There is a need to do more research on the effects of malnutrition in more developed nations (Farrel, 1978; Politt, 1994).

Whereas the literature points towards a strong relationship between socioeconomic conditions and student achievement, we must concede that other variables - such as poorer parents possessing less education, limited resources, and lack of free time - might very well work in concert with poverty to exacerbate school problems. We must also concede that parent deficiencies themselves may not cause poverty, but are by-products of it. More research needs to be done on causal directions and the possible cyclical nature of this problem.

2.60 Race And Ethnicity

The study of race and achievement is often controversial and explosive, perhaps even needlessly so. Debate over the relative contributions of the pupil's ethnicity or race to that pupil's achievement has at times dominated the conversation in many different circles. Many researchers and laymen alike assumed an association was a given. There is research that exists in support of a significant independent role of race, but it is being challenged by more recent

findings.

Some have questioned the validity of a narrow association and are postulating a declining significance of race in the research literature. In The Truly Disadvantaged, Wilson (1987) and (1996) reports that historic migration patterns of yesterday have worked to cause a changing reality for today's black minority: Economics constitutes the new central barrier to further black progress. Wilson (1991a, 1991b) conducted a review of the literature and found that the proportion of people who live in ghettos "varies dramatically by race". Whereas 21 percent of black poor and 16 percent of Hispanic poor lived in ghettos in 1980, only 2 percent of non-hispanic white poor resided there. The push for a belief in the declining independent significance of race appears to have gotten its impetus from these sources.

A limited number of studies find a direct association between race/ethnicity and academic performance. Carter and Levine (1977) reported that ethnicity more than social class was related to achievement. Wright and Dhanota (1981) found that Canadian Asian public school students were more apt to be in higher level classes, followed by white and then black students. Easton and Bennett (1989) found that students in predominantly minority schools do the least amount of homework compared to other schools. A study by Dulaney and Banks (1994) shows that blacks, especially males, continue to lag behind

whites in regards to achievement and socioeconomic related problems.

In a study of longitudinal data, Peng et al. (1995) found that African American, Hispanic, and Native American students start off in the early grades with as much enthusiasm and ability for math and science as whites. As the years progress, however, the efforts of minorities are negatively impacted by such factors as:

- Fewer academic materials in the home;
- Parents with lower educational levels;
- Unemployed parents;
- Less in-home tutoring for science and math;
- Increased likelihood of attending low-status schools;
- Increased enrollment into remedial classes; and
- Parents not meaningfully involved with the school their child attends.

Levine and Eubanks (1985) found strong links between race, social status, and achievement. They describe one school district which, as a result of the loss of its white and black middle class, transformed itself from an achieving into a low-achieving inner-city school district within a twenty year period.

A part of the research examines both social and academic behaviors. Hare and Levine (1985) found that there is often a "mismatch" of culture and experiences between the home of low-

status minority students and the classroom environment, which partially accounts for low achievement among disadvantaged groups. Spencer, Kim, and Marshall (1987) speak of a process of "double stratification" involving combined negative effects of caste membership and low-economic status. Given added pressures associated with skin color (i.e.- the inability to pass as a majority member) and lack of financial resources, disadvantaged minority youths may very well buy into survival behaviors that are counter-productive to mainstream success ideology.

Murton (1966) researched sixth grade data and found that inner-city minority youth generally have lower school achievement and teacher ratings, higher rates of absenteeism and delinquency, and more difficult home environments. Winkler (1975) found that blacks and whites are exposed to different kinds of peer group settings, and that effects of peer group composition upon achievement vary by race. Daniels et al. (1992) surveyed a group of public housing, and non-public housing students, and found that African Americans adjusted quicker to peer and personal issues than did Asian, Hawaiian, Native American, and white adolescents.

Some of the research that report a relationship between race and achievement find that race by itself is not enough to make a difference. When combined with other environmental factors, however, the relationship is clear and significant.

For example, Fraser et al. (1985) and Schibeci (1986) discovered that although science students' achievement and attitude were most influenced by ability, motivation, and classroom environment, a joint variable of race and sex also proved significant. Drazen (1992) studied a data base of 58,000 students and concluded that "non-minority status" was one of the three most potent factors (along with parent education and income) in predicting student achievement.

Mulkey et al. (1992) showed in a path analysis that about .30 of the standard-deviation differential typically reported for achievement scores was explained by a combination of race/ethnicity and the education level of parents. According to Chambers (1987), Caucasian students scored substantially higher than Hispanics on each subtest, as well as on the composite score, of the ACT test. He makes note, however, that part of the effects of race is transmitted by income. Perrin (1976) studied Anglo, Mexican-American, and African American poor and middle class students. A relationship was found only within a sub-group of the middle class population: Anglos performed significantly better.

There is growing research to support Wilson's (1987, 1996) theory that the direct independent impact of race on achievement is declining. The line that separates these studies from those which report a qualified relationship, however, is not always clearly drawn. For example, an early

study of black and white high school dropouts by Stetler (1959) concluded that income level and environmental instability factors accounted for higher dropout rates in the black population. Stetler did not study the role of discrimination, but postulates an impact. Thompson et al. (1979) reported that variables such as curriculum, student attitudes, and school climate are more important determinants of student achievement than race and sex. A synthesis of the literature by Zill (1992) reveals that ethnic disparities, although real, are substantially reduced when grade repetition rates are adjusted for parent education, family income, and family composition.

Cooper (1977) found that when family income, parent education, and parent unemployment were taken into account by covariance procedures, ethnicity accounted for only 2 to 4% of the variance in achievement of Hispanic children. In a path analysis, Ingersoll (1978) found that race was not a direct contributor to reading achievement, but rather an indirect factor associated with family income and vocabulary development. Kraig (1989) found that income level accounted for most of the differences between the achievement scores of Hispanic and white students on a California Basic Skills Test. Kukuk, Levine, and Meyer (1978) studied data collected from six large urban cities and found that only one of them showed a slight negative direct relationship between race and

achievement. Much of the effect of race on school achievement was transmitted through forces that result in the "characterization of black neighborhoods as being very high in social or family disorganization". Ornstein and Levine (1989) reviewed the literature and concluded that social class accounts for much of the variation in educational achievement by race and ethnicity.

An analysis by Sato (1979) reveals that culture more than race directly accounts for much of the academic success of Asian students. Such aspects as religion, tradition, family involvement, and the phenomenon of social shame work together to help both poor and not-so-poor Asian students achieve. Hale (1980) found that culture potentially could play a major part in African American achievement. Soto (1989) found that family involvement, not ethnicity, independently accounted for a significant amount of variance in low achieving Puerto Rican children. Hare (1975) reported that the lack of self-esteem is more damaging to the achievement of inner-city children than race.

Levine and Havighurst (1992) reviewed the literature and found studies to support both sides of the race/achievement debate. Those opposed to the belief in a direct fundamental influence of race content that:

- Social class status and social background are becoming more important compared to race when looking at black gains and losses, and;

- Status attainment processes and patterns for blacks are becoming more like those of whites.

Those who support the fundamental influence of race contend that:

- Segregation makes it difficult for inner-city minority youth to acquire the mainstream culture, values, and personal contacts needed to survive in a competitive, modernized society, and;
- The main effects of race and social class do not account for all of the race differences that exist in the world of everyday inner-city neighborhoods (pp. 364-365).

Rouse (1980) found that "learned helplessness", peer pressure, and dysfunctional street subcultures are socioeconomic culprits which help to muddy the waters of race effects research of inner-city minority and disadvantaged children. According to Spencer, Kim, and Marshall (1987) although the "learned helplessness" literature is not without its deficiencies, it affords an enhanced understanding of the academic behavioral patterns of oppressed minority youth.

For the last 15 years or more, the academic world has mostly embraced the concept of the declining role of race. A few researchers refuse to get caught up in an either-or debate, however, and choose rather to integrate the two schools of thought. Recent developments and thoughts on the subject reveal a modified and more inclusive view. For example, Levine and Levine (1996) explain that race and social class may have become so intertwined and institutionalized

that it may be impossible to discern individual effects.

Some studies call for a more in-depth analysis of the gaps in the methodology used in race and ethnicity research. Henly (1995) conducted a review of the literature, and criticized research which claims to explain phenomena that cannot be captured through traditional methods. For example, she argues that:

- Although a multiple regression can give important insights on the effects of race, it may not, however, explain the effects of discrimination nor cultural nuances between ethnic groups that may impact cognitive and affective orientations;
- Research has proven that similar qualifications among groups don't always equate to equivalent exposure for all groups;
- Similar levels of education often equate to less financial return for blacks than whites;
- Factors such as SES and class are often viewed differently by blacks and whites - example, lower skilled positions are assigned greater relative status by the African American community; and
- Most existing data sets do not disaggregate between normative (individual) and social-structural (neighborhood) influences.

A review of the literature by Chan and Rueda (1979) revealed that it is no longer enough to know that a child is from a particular ethnic group. Fine grain analysis of ethnic group membership, ethnic group behavior, and ethnic learning styles must be investigated as well. Wilson and Allen (1987) distinguished between the socialization perspective (one receives that which one works and prepares for) and the

allocation perspective (merit and work does not guarantee what one receives), and report that,

Unfortunately, the research record has not been so nearly reasonable in the consideration of the links between black family life and the educational attainment of black Americans. Instead, the socialization perspective has been by far the dominant view, resulting in an orthodoxy which indicts black families, (p. 75).

An accurate theoretical base from which to study African American achievement, the authors say, comes when both perspectives are jointly considered. This view is also supported by Farley (1995).

2.61 Gaps And Understandings About Race Effects

Significant portions of the literature demonstrate that achievement has been, and still is, stratified along race and ethnic lines, and that a positive relationship exists between the two (Carter & Levine, 1977; Daniels et al., 1992; Dulaney & Banks, 1994; Easton & Bennett, 1989; Hare & Levine, 1985; Levine & Eubanks, 1985; Peng et al., 1995; Spencer, Kim & Marshall, 1987; Winkler, 1975; Wright & Dhanota, 1981). Other studies show a qualified relationship: Some of the association is explained by the mediation of various intervening variables such as ability, income, and parent education (Drazen, 1992; Fraser et al., 1985; Levine & Havighurst, 1992; Mulkey et al., 1992; Perrin, 1976; Schibeci, 1986).

A growing amount of research in support of a declining direct impact of race and ethnicity on achievement also exists

(Cooper, 1977; Hare, 1975; Levine & Havighurst, 1992; Ingersoll, 1978; Kraig, 1989; Kukuk et al., 1978; Ornstein & Levine, 1989; Sato, 1979; Soto, 1989; Stetler, 1959; Thompson et al., 1979a; Wilson, 1987, 1991a, 1991b; Zill, 1992). Much of that research looks somewhat similar to the qualified relationship portions of the race effects literature except for the way the conclusions are written.

We know that there are few significant achievement differences between races and ethnic groups during early school years, but as students grow older, a widening gap begins to manifest itself (Levine & Havighurst, 1992; Levine & Levine, 1996). The climate of the home and neighborhood, along with the quality of schools and accessibility to opportunities has a lot to do with explaining that gap. So, too, do other intervening variables such as the influence of peer cultures and the manner in which free time is spent.

There are a few gaps in the literature. We need to gain a better understanding of why some studies only show a race difference for non-poverty sub groups. We do not clearly understand the effects of historic culture and peer influence upon minority achievement scores. Very little work has been done on the impact of the hidden curriculum of schools, and how that impacts minority student performance. While there are abundant studies of African American and Hispanic students, other minority groups have received far less investigative

attention.

There is also a need for both qualitative and quantitative studies of the long term effects of the use of black dialect and other non-standard forms of English in the home and at school. The sensitive nature of this topic should not deter researchers from performing this needed function. In addition, the body of learned helplessness literature is small, and more knowledge needs to be gained regarding both its process and remediation.

2.70 Quasi-Neighborhood Indicators

Up to this point, it has been shown that the impact of individual and family environmental indicators on school achievement has received considerable attention, some areas more than others. Although individuals and families make up neighborhoods, most of these studies do not look at how community climate and neighborhood type impact student achievement. This section is labeled "quasi-neighborhood indicators" because the variables studied fit to one degree or another in both individual/family, as well as neighborhood categories.

The boundaries which delineate the categories are unclear and often intertwined. For example, the first variable to be studied - population density - can be seen either as a family factor (number of people per room), or a neighborhood factor (number of people per square block), depending on the

definition used and the focus of a particular study. Even if one chooses the former, people per room could be considered a partial neighborhood indicator. Another example can be found in efforts to deal with a second and third environmental characteristic: Quality of housing and residential mobility. Whereas parts of each appear to qualify as "home environment" variables, the neighborhood value of these factors is also evident.

In this paper, such variables will be assigned a mixed label. Although this study ultimately seeks to investigate neighborhood effects, it must rely on individual, family, and quasi-neighborhood research to set the proper context. Studies cited in this portion of the review help to shed light on our limited understanding about the impact community and neighborhood forces have on student achievement. A fourth characteristic - neighborhood crime, as well as a fifth - studies that specifically look at neighborhood effects - will be dealt with respectively in sections that follow this one.

2.71 Population Density

A review of the literature reveals few studies which investigate the link between population density and student achievement. An absence of density effects research in the field of education may have led some, during past times, to draw inferences from the field of animal research, which studied the behavior of mice. Calhoun (1962), for example,

conducted a study that showed overcrowded mice were prone to display "pathological" behaviors such as aggression and high levels of agitation. A review of the animal research literature by Meyer and Levine (1978) revealed studies showing a relationship between crowding and pathological behaviors.

Cohen (1975) reviewed the literature and found that once mice pass from "optimal" to "maximum" population sizes, they exhibit one of the following nonadaptive social interactions: (a) ambivalent withdrawal; (b) an aggressive offense; or (c) dazed confusion and indecisiveness. "The biochemical level of the physiological processes is found identical in mice and men," (p. 8). People read early studies such as these and began making premature assumptions about humans based on the behavioral findings of mice.

Cohen did, however, note that the research showed the feeling of crowding is a relative concept dependent upon both perception and the reason for it. In addition, some organisms encode environmental changes at different rates than do others from the same species. Neither animals nor humans are born with predetermined thresholds for population density. People are, however, born with the ability to adapt, and often experience both a mixture of frustration and gratification from the experience of crowding.

A portion of the literature deals with methodology and definition. According to Stokols (1972) and Morgan (1972),

studies must discriminate between density (actual limited space), and crowding (a social-psychological perception). The distinction between density and overcrowding is now standard procedure (Lawrence, 1974). The few studies which look at the human response to over-crowding have shed limited light on the subject. Michelson (1968) found that the number of residential families per block had a slight negative correlation with achievement. He also found that doing homework in a shared room (overcrowding) only had a negative effect among those students who experienced a high noise factor along with it. Shared crowded rooms that had elements of "functional privacy" did not show an adverse effect. Levine and Havighurst (1992) cite research that found inner-city elementary students living in high-density apartments had less study space, and were more hyperactive and antisocial than their low-density counterparts.

A review of research reported by Meyer and Levine (1978) revealed the following findings:

- Problems manifest themselves in some crowded environments more than in others. For example, high density in large cities correlates more with crime rates than in smaller cities;
- There is a possibility that housing density relates to higher "emotional strain" for lower class individuals more than for those from other classes. Apparently, the poor have fewer ways to cope with density related stress;
- Middle class tenants of high-rise buildings display less pathological behaviors than poorer high-rise

tenants. This is most likely because middle-class status correlates with larger space and less neighbor interaction, and;

- Persons per room is a better predictor of public assistance and juvenile delinquency rates than are measures of housing units per structure, although the latter is singularly related to delinquency rates.

The Meyer and Levine (1978) study upheld other research findings indicating that high density is related to low achievement in low status neighborhoods, but not in middle status neighborhoods. Morgan (1972) reported that high density and overcrowding can interfere with fundamental social support systems individuals need for survival. Morgan (1979) found that density and income were the strongest socioeconomic predictors of achievement in the last decade of a data set that expanded four decades from 1950-1980.

Meyer & Levine (1978) make note that density is often measured in several ways: by persons per acre, persons per building, persons per housing unit, persons per room, buildings per acre, or families per unit. Future research will need to do a better job of accounting for all of the different ways of defining the problem. People respond to crowding differently depending on the circumstances of the situation, and one cannot assume that high density necessarily generates pathology. In addition, Stokols (1972), Morgan (1972), Meyer and Levine (1978), and Levine and Havighurst (1992) postulate that other intervening socioeconomic variables such as income,

parent education, and neighborhood conditions potentially transmit their effects through density. The reader is reminded, however, that a study investigating the complex interplay between environmental variables is beyond the scope of this study.

2.72 Gaps And Understandings About Population Density Effects

A review of the limited literature on the relationship between population density/overcrowding and achievement reveals there is a lot we don't know about this association. Density is one of the least studied of the variables utilized by this research. There are a few things, however, that we can tentatively say we understand.

A few studies show a slight but significant negative relationship between density and student achievement (Morgan, 1979; Levine & Havighurst, 1992; Michelson, 1968; Morgan, 1972; Meyer & Levine, 1978). Other studies, each of which need more investigation, report the following qualified relationships:

- Overcrowding does not have to be a negative correlate if a sense of privacy and lower noise levels can be worked out for students (Michelson, 1968);
- Lower class individuals and larger cities experience the most negative of impacts (Meyer & Levine, 1978);
- The negative impact of overcrowding is mostly felt by the strain on the delivery of social and community services (Morgan, 1972), and;

- The impact of density on student achievement may be more pronounced during recent decades as opposed to earlier decades of this century (Morgan, 1979).

Behavioral research literature hints at a negative relationship between overcrowding and various form of animal pathology (Calhoun, 1962; Cohen, 1975; Meyer & Levine, 1978). However, the findings are tempered by two realities (a) the link between animal and human behavior is not clearly understood, and (b) the findings make room for exceptions based on an organism's threshold for adaptability and tolerance. Even human studies acknowledge that there is no set rule on the response to density (Lawrence, 1974; Stokols, 1972). In addition, a few studies postulate that other intervening variables help to transmit the effects of density (Levine & Havighurst, 1992; Meyer & Levine 1978; Morgan, 1972; Stokols, 1972;).

The gaps in our understanding about the relationship are many. The biggest gap in the research is the lack of studies conducted specifically in the field of education and other help professions. A related need is to conduct more research that differentiates various types of urban, as well as rural settings. Such research could contribute to an understanding of what types of population scenarios best promote or inhibit the goals of education.

The process of how SES transmits the effects of density and overcrowding is an area not fully understood. It is quite

possible that the effects of population density vary according to neighborhood and income level. For example, residence in a high-rise apartment building appears to evoke different responses across different socioeconomic classes (Meyer & Levine, 1978). Much like other variables studied in this review, research looking only at a singular influences probably misses the target. What role, for example, do neighborhood crime rates have in transmitting the effects of population density?

In summary, it is safe to say that the effects of high density and overcrowding on achievement depend on the grouping of multiple variables, as well as on individual circumstances. Lastly, researchers should carefully define terms and measures used to assess the independent and dependent variables in density studies (Lawrence, 1974; Meyer & Levine, 1978; Morgan, 1972; Stokols, 1972).

2.73 School And Residential Mobility

Studies on the effect of school and residential mobility on student learning are limited. What research there is indicates there are mixed findings. While some forms of mobility negatively impact student achievement, other forms may have the potential to actually enhance performance.

Studies which argue against a relationship are particularly rare. Bollenbacher (1962) studied sixth grade boys' and girls' school records and found that after IQ scores

are taken into consideration, reading achievement, as measured by standardized tests, was not affected by the number of schools attended. "A mobile student is likely to be a low achiever in reading, but the fact that his low achievement is related to his proportionately low ability is likely to be overlooked," (p. 360).

Some studies only investigate academic relationships, while others consider both academic and emotional/behavioral effects. An early case study of schools by Beach and Beach (1937) showed that migratory students showed only a slight decline in scholarship when compared to less-mobile residents and locally transient students. Of greater significance was the influence of migrancy on social behaviors and life attitudes. Social and emotional adjustments of mobile children were far more influenced by mobility than was achievement. Downie's (1953) study of mobile and stable elementary (grade 5-8) students found that both groups scored approximately the same on intelligence tests. Social adjustment scores, however, showed more differentiation. Groups who reported one or two moves, or had been in one school from one to three years after moving received greater average social acceptance than students who had either been in one school throughout their lives, had been in one school less than a year, or had very high rates of school mobility. Downie spoke of a "confused picture", and postulated that moderate levels of mobility,

followed by a period of adjustment, may have more positive impact on the social adjustment behaviors of certain students than too much mobility or none at all.

Other studies find that certain appropriate levels of mobility may have a positive impact on academic achievement. Smith (1943), for example, studied a random sample of college students and found that immobile persons (same residence most of schooling years) had lower mean IQ scores, as measured by percentile scores from the American Council on Education Test, than mobile students. A slight positive correlation between amount of mobility and intelligent scores existed. Smith admitted that the reason for these findings were "obscure" and postulates,

Perhaps the simplest interpretation is that mobility increases knowledge, stimulates curiosity, tends to develop speed of response, encourages imagination and develops mental flexibility, all of which qualities help to improve intelligence test performance. Mobility requires new social contacts and relationships and the accompanying experiences also may influence performance on tests, (p. 664).

One may want to keep in mind, however, that the results of studying the effects of mobility on primary grade students might look different than the results found in a study on college students.

Greene and Daughtry (1962) studied the achievement scores of high school juniors and found that:

- Students who had made a moderate number of voluntary inter-school moves were more likely to

have higher-than-average math placement scores when compared to less mobile students;.

- Voluntary mobile students had fewer than average school absences;
- Recently arrived students had comparatively favorable home adjustment scores, as well as less incidence of tardiness, when compared to less mobile students;
- Students with high "distance of mobility" (longer relocation travel) were more likely than average to have favorable social adjustment scores, and earn favorable marks in biology, Spanish, and music.

Greene and Daughtry concluded that "...The presumed effects of school mobility...[are] contrary to the apparently prevailing opinion of parents and teachers that school mobility has 'unfavorable' effects," (p. 40).

Some studies make a socioeconomic connection. Research reviewed by the Eric Clearinghouse On Urban Education (Corporate Sources, 1991) has found that more than two moves in a school year negatively affects student achievement, particularly when students are from low-income, less educated families. Murton (1966) found that high mobility students in both inner-city and suburban sub-groups fared worse than respective comparison groups on these dimensions. However, the inner-city mobility group showed the greatest number of academic deficiencies among all groups. Murton stops short of making a cause and effect association, and cautions that the reasons that families move are more important than the actual move itself.

A study by Stuhr and Wright (1968) showed how the interplay between mobility, social class, and ethnicity may not be clearly understood. Their study of 158 Canadian families revealed that the relationship between past mobility and academic performance is significant only among the Anglo-Saxon subgroup of the sample. Stuhr and Wright postulate that poor minority and disadvantaged groups apparently had certain other socioeconomic variables (i.e. eviction, a raise in rent, avoiding bill collectors, job changes, etc.) that transmitted the effects of mobility. The findings do, however, confirm the conclusion that reasons for which people move are more important than the move itself.

Goebel (1975) reported that mobility in and of itself is not a significant direct predictor of how students perform. In addition, there may be critical periods in child development when residential mobility has greater impact on long-term academic and cognitive development. Other findings of the Goebel study include:

- High or moderate mobility during preschool years has a positive impact on both student achievement and IQ testing. It is suggested that children at this age are more susceptible to diverse environmental enrichments;
- During the adolescent years, long-term achievement results was negatively impacted by both high levels and no levels of mobility, while students of moderate levels were impacted positively, and;
- Male academic development was more dependent on mobility indices than female development. Although

the differences among females were not found to be statistically significant, moving appeared to negatively impact boys.

In both preschool and adolescent populations of the Goebel study, any amount of mobility had a greater positive effect on achievement than no mobility at all. When studying cognitive development, however, only the preschool population showed a relationship. In addition, inter-community moves were more likely to have a positive impact on achievement than intra-community moves. For the population studied, movement within the city apparently signaled higher levels of family disorganization than between-city or between-state moves. Distinctions that take into consideration social class and rural-urban location with regard to this last point were not made, however. Goebel concludes by stating that studies using only gross indices of residential mobility might fail to obtain significant results due to "confounding" of the data.

2.74 Gaps And Understandings About Mobility Effects

A review of the literature reveals a confused state of affairs when attempting to understand the relationship between achievement and mobility. What we don't know about the effects of mobility is far clearer than what we do know. Because the research is limited and the results are mixed, conclusions from the literature must be cautiously drawn. Nonetheless, there are some trends which can be identified.

A few studies (Beach & Beach, 1937; Downie, 1953;

Bollenbacher, 1962) either negate or fail to find a significant relationship between mobility and achievement and IQ scores. Other studies show a slight-to-moderate significant, relationship with achievement or IQ on one hand (Greene & Daughtry, 1962; Goebel, 1975; Smith, 1943; Stuhr & Wright, 1968), and a strong relationship with emotional and social adjustment on the other hand (Beach & Beach, 1937; Downie, 1953).

Whereas several studies (Corporate Sources, 1991; Downie, 1953; Greene & Daughtry, 1962; Murton, 1966) found that high levels of mobility had a negative effect, others (Downie, 1953; Goebel, 1975; Greene & Daughtry, 1962; Smith, 1943) found that immobility is also negatively associated with achievement. This does not mean, however, that immobility causes low academic performance. Likewise, moderate levels of mobility appear to have the potential to yield positive results (Goebel, 1975; Greene & Daughtry, 1962; Smith, 1943). The reasons for this phenomenon have not been tested, but postulates include that parents of middle class families are upwardly mobile and often get job offers that require strategic moves. The children of these families benefit from the wide range of positive environmental stimuli (i.e. enhanced sense of geography) that accompany periodic moves. The key factor here is that the moves are few and linked with positive outcomes (i.e. increase access to opportunities).

A few studies hint at the notion that high levels of mobility within the city are more indicative of a poorer unstable family lifestyle, and that inter-city and long distance mobility has less negative effects (Goebel, 1975; Greene & Daughtry, 1962; Murton, 1966). Several studies make the point that the reason for moving is a better predictor than moving itself (Goebel, 1975; Greene & Daughtry, 1962; Murton, 1966; Stuhr & Wright, 1968).

The obvious gap in the mobility literature is that not enough studies have been done to fully substantiate these conclusions. Methodology problems exist mainly because most studies are conducted using gross indices of mobility. SES considerations and possible gender and race differences are not clearly understood. It is recommended that future research undertake the difficult task of disentangling variables that are possibly enmeshed (Corporate Sources - ERIC Clearinghouse On Urban Education, 1991; Goebels, 1975; Smith, 1943; Stuhr & Wright, 1968).

Likewise, the possibility of mobility impacting different phases of child development periods is not clearly understood. It also appears that most of the effect of mobility is on social adjustment and peer acceptance, and that achievement is mostly impacted through an indirect path (Beach & Beach, 1937). In addition, once cognitive ability (IQ) is controlled for, there is only a small amount of achievement that is

explained (Bollenbacher, 1962).

One is left to ask a series of subsequent questions:

- Is it better to look at cognitive ability (IQ) instead of achievement when looking at mobility?;
- Is it mobility per se, socioeconomic factors, or a combination of both that impacts student learning?;
- What is the real role of moderate levels of mobility?;
- How valid is the inter-city versus intra-city construct?;
- What impact do voluntary versus involuntary moves have on achievement?; and
- Is mobility an indicator of performance, or vice versa? There is a need for more research to further clarify the processes at work here.

Further investigation is also needed to determine a more accurate path analysis: Does mobility result in some form of academic advantage or disadvantage, or do socially and academically advantaged or disadvantaged students tend to be members of more mobile families?

In summary, we can cautiously conclude that mobility in and of itself does not limit student achievement, and that at certain stages of childhood development, it may in fact enhance learning if one controls for the amount, the quality, and the types of moves made. However, if combined with certain socioeconomic realities and urban problems, mobility may have a way of exacerbating both school and family problems.

2.75 Family and Neighborhood Housing

There is very little research in the literature that looks at the relationship between housing and academic achievement. Much of what is written about the subject is derived from observation and editorials on one hand, and results that are concluded from income and SES studies on the other. There are, however, a few studies on housing that can be cited.

Passow (1979) synthesizes the results of a few qualitative studies and case studies and concludes that children from low-income housing tend to have (a) poorer physical and mental health; (b) lower school achievement than their counterparts from more affluent families; and (c) to deal with emotional and psychological climates that create a sense of fear.

A limited number of quantitative studies exist. Kukuk, Levine and Meyer (1978), for example, found that deteriorated housing and crime were very highly correlated with female-headed families, overcrowded housing units, and low-achieving-students. Maynard (1977) found that the quality of housing together with type of nutrition had a direct influence upon the test scores of a population of students in the third to eighth grade levels. Meyer and Levine (1978) found that (a) market value of owner-occupied housing was related to achievement, and (b) percent of vacant housing units was related to low achievement in four of six big-city school

districts studied.

Michelson (1968) found a moderately strong relationship between type of housing and achievement: Children living in single family Canadian dwellings had higher scores. Lesser scores characterized children living in town houses, walkup apartments, and elevator apartments, in that order. The highest math scores, however, went to families that lived above stores. Michelson speculated that the influence of close family supervision of children facilitated by the family business may have extended benefits into the classroom. Kukuk et al. (1978) found that a combination of deteriorated housing, high crime, and family and social disorganization correlated with low student achievement.

Other efforts aimed at gaining a better grasp of the relationship come from survey research and government data collection, particularly of residents and conditions in public housing units. Schmitz (1992) reviewed the results of several U.S. Department of Housing and Urban Development (HUD) studies performed over past years and came up with these sober findings:

- There is a very high fear rate among tenant residents;
- The robbery rate for poor housing project residents is 5 times the national average for poor non-housing project residents, and 6.5 times the national rates for all groups;
- Gang activity often controls the social flow in

housing projects. In high-rise units, gang members often charge residents to ride the elevator;

- Youngsters are often kept home to avoid being victimized on the way to and from school; and
- Many parents cite the above stressors as reason for the school failure of their children.

Researchers associated with the Department of HUD (1992) studied the academic achievement of children and adult residents of public housing (1989 American Housing Survey - National Longitudinal Survey of Youth), and found that Native American, Black, and Hispanic children (a) had lower results on report cards and achievement tests when compared to other non-public housing minority and white youth; (b) had a median 11.4 years of school attainment compared to 12.7 years for all renting U.S. citizens; (c) failed to complete high school at twice the rate of all U.S. renters; (d) graduated from college at one-sixth the rate of non-public housing residents; and (e) demonstrate a "strong correlation" between parent education attainment and the child's academic performance.

Ripordy (1989) found a link between stressful environments and problems with certain aspects of physical health such as eating disorders, bruxism, lethargy, and constant physical tension. "Traumatized children frequently display intellectual regression and infantile behaviors at school, or withdraw into a fantasy world where they can better control negative outcomes. Difficulties dealing with new

information, cognitive confusion, memory loss, and rigid thinking are common reactions," (Schmitz, 1992, p. 42). Subjecting children to a combination of low income, poor housing, high fear of crime, and fewer positive role models heightens the chances for academic failure, social maladjustment, and emotional and physical trauma.

2.76 Gaps & Understandings About Housing Effects

A review of the literature shows us that we know very little about the effects of housing on achievement. Although limited research will not allow us to draw concrete conclusions, there are a few general trends that seem to emerge from the literature.

Several studies show a positive relationship between the condition of family and neighborhood housing and student achievement (Corporate Sources - HUD, 1992; Kukuk et al., 1978; Maynard, 1977; Meyer & Levine, 1978; Michelson, 1968; Passow, 1979; Ripordy, 1989; Schmitz, 1992). The type of housing and market value of the home may also be linked with achievement (Meyer & Levine, 1978; Michelson, 1968).

There appears to be a positive relationship between good housing and positive physical, emotional, and mental health (Kukuk et al., 1978; Passow, 1979; Ripordy, 1989; Schmitz, 1992). Conversely, it appears that there is more of a chance in older more poorer neighborhoods for socioeconomic conditions to pull the attention of young learners away from

academics. Most of the research cited in this study demonstrates that other variables - low income, crime rate, gang activity, female-headed homes, minority status, vacancy rates, parent education, climate of anxiety - work in concert with housing conditions to produce a negative effect on inner-city and disadvantaged students.

We have some knowledge about the relationship when looking at the impact of one specific type of housing - public housing projects. The achievement scores and report card grades of children who live in these housing projects are generally lower than non-public housing residents (Corporate Sources - HUD, 1992; Levine & Levine, 1996; Schmitz, 1992). It is a fact that in most cities the levels of gang activity, property crimes, and violent crimes are highest in housing project areas.

It is also possible that programs which allow the families of inner-city disadvantaged youth to relocate to middle class neighborhoods might be a way of stemming the tide of academic failure for this population (Kaufman & Rosenbaum, 1992; Levine & Levine, 1996). A very sensitive question that is not being asked about this approach is: Will the effect always be one way and positive? Will middle class children and neighborhoods always positively impact disadvantaged kids without the reverse taking? In any case, future studies should look at not only student achievement, but also the effects of

relocation on parents as role models and academic stimulators.

It is generally accepted that areas of town where homes are the most deteriorated tend to be in the inner-city. It is also known that many, though not all, of the neighborhoods in these areas tend to have very tough psychological climates. We need a better understanding of how environmental stress as a result of deteriorating housing affects student performance. Methodology problems must be addressed. Future studies need to disaggregate the data so that types of housing and neighborhoods are taken into account. Social disorganization is correlated with diminished academic performance (refer to sections 2.80 & 2.90). We know that vacant and deteriorated housing is one important sign of that disorganization. We also know that bad housing conditions don't normally exist in isolation. They are usually accompanied by at least one or more social dysfunction indicators.

The biggest gap in the literature is that there is a lack of studies which specifically examine the relationship between housing and achievement. Much of what we know about the effects of housing is drawn from inference on the one hand, and the findings of a limited number of studies on the other. Readers must be mindful that poor housing may not always reflect personal deficiency, and that many families possess the strength to overcome the negative effects of poor housing.

2.80 Neighborhood Crime

Information on the relationship between individual or neighborhood crime and academic achievement is provided to the field of education mostly by way of craft knowledge, observation, and editorial. Because of the subjective nature of that body of literature, most of it cannot be presented here. There are a few research studies, however, that provide an indirect path to a general understanding of the impact crime has on achievement.

For example, Borus (1983) used a sample of white males and females to conduct a path analysis of the relationship between crime and employment. For males, crime was negatively associated with reduced labor force activity, although the relationship appeared to vary by type of offense and by the measure of labor market participation. The use of drugs was not associated with working. Findings for females were not found to be significant.

Kukuk et al. (1978) found that large urban cities are characterized by high crime rates and social and family disorganization. Together these factors negatively correlated with low academic achievement. Will and McGrath (1995) studied data drawn from the 1987 General Social Survey (N= 1,799) to test the relationship between neighborhood fear and crime. Higher neighborhood fear and victimization rates were found in low status neighborhoods of large cities. Underclass women were especially vulnerable.

Donnelly (1989) conducted a discriminant analysis to shed more light on the fear factor of individual and neighborhood crime. Findings include:

- The elderly, women, blacks, and those persons who live alone experience the most fear of crime;
- Violent crime rates are a better predictor of fear than total neighborhood crime rates;
- Neighborhood changes and deterioration are positively related to fear;
- Conditions outside the neighborhood also affect fear levels. This is especially true when adjacent neighborhoods have declined, resulting in groups of teenagers from those neighborhoods passing through once safer neighborhoods;
- A sense of loss of control over area public life, and the means to ward off offenders, is associated with fear, and;
- Few studies bother to look at the interactions between individual and neighborhood characteristics.

Two studies were found that looked at the specific relationship between crime and achievement. The direction of the focus, however, was inverse (i.e.- can crime be predicted by looking at achievement). For example, Moskowitz and Crawley (1989) conducted a longitudinal study on the question of whether or not teenage behaviors provide supplementary or overlapping prediction of adult crime. It was found that knowledge of adolescent social behavior was a far more potent predictor than knowledge of prior school achievement. It was also concluded that aggressive male teens were four times

likely to commit an adult crime as compared to a control group. All female groups had much lower rates of crime than males.

Wiechman (1978) looked at crime data from all fifty states, and conducted a multiple linear regression analysis on the relationship. The strongest predictor of total crime was median school years completed, with 34% of the variance explained. A significant relationship between achievement and property crimes was found, with 47% of the variance explained. A relationship with violent crime was not found to be significant. A regional analysis of the data revealed that the iteration sequence of the regression analysis was not monolithic: Each geographic region had different experiences with various patterns and ranges of criminal activity.

2.81 Gaps And Understandings About Crime Effects

A careful review of the literature shows a significant absence of research studies dealing with the question of neighborhood crime from an educator's point of view. Studies that do exist deal more with social behavior. The few that attempt to look at academic achievement do not fully address the issue in a manner befitting the research question. As a result of this gap, tentative conclusions are offered.

Material presented in this section and elsewhere points to high multicollinearity of social disorganization indicators. For example, there may potentially be a

relationship between crime and reduced labor force activity (Borus, 1983), fear of crime, victimization, and neighborhood type (Donnelly, 1989; Will & McGrath, 1995), and crime and poverty (Gramsick, 1993). Although this review highlights a few of these findings, the disentanglement of environment indicators is better suited by a study different and more complex than the one proposed here.

What educators think they might know about the relationship does not come from research, but rather from conjecture and postulation usually drawn from observation, craft knowledge, or from local government statistics. For example, common sense tells us that if students are worried about their safety, they may be less focused on their studies. However, there does appear to be a limited amount of research which demonstrates that inner-city, older & poorer neighborhoods experience a larger share, as well as a greater fear of crime (Donnelly, 1989; Kukuk et al., 1978; Will & McGrath, 1995. Males perpetrate crimes more frequently than females (Borus, 1983; Moskowitz, 1989), and may have a rougher time achieving academically when they come from disadvantaged neighborhoods (Schweinhart, 1993).

Obviously, more studies specifically dealing with education are needed. In addition, those studies need to be tailored to answer certain kinds of questions. These questions might include:

- What are the effects of neighborhood change on crime and achievement? How does the status of one neighborhood affect the status of an adjacent one?;
- Can a high or middle SES neighborhood mediate negative effects of crime?;
- What kind of results would we get if we looked at the interrelationship between individual and neighborhood crime, as it relates to achievement?; and
- What impact does neighborhood crime have on school culture and achievement?

2.90 The Impact Of Neighborhoods

A careful review of the literature reveals that although the impact of school inputs is well researched (Crane, 1991; Jencks & Meyer, 1990), studies on the effect neighborhoods have on student achievement are few in number. Of the studies that do exist, some examine the impact primarily on academic achievement, while others investigate a variety of academic and social concerns.

Bronfenbrenner (1989) offered an ecological model that originates from the field of developmental psychology, which lends much of its development to the urban ecology studies of the University of Chicago during the 1920's and 1930's: individuals cannot be studied in isolation without taking into account the multiple ecological systems in which they live and interact. Variables such as peer groups, schools, work place, neighborhoods, and the various institutions of those neighborhoods do just as much to explain the individual as do

individual and family factors. Morgan (1979) reported that studies have largely ignored neighborhood contexts. A very recent sign of "cross fertilization" between fields has begun to take place, however. This is so because of worsening conditions in many inner-cities.

Wilson (1987, 1996) helped to galvanize the research community in terms of understanding the effects of post-industrial structural changes upon the residents of poorer communities. Dramatic changes in the work force and in society helped to create an economic and social nightmare for inner-city residents of large urban cities, many of whom are African Americans and Hispanics. Wilson (1991a; 1991b) explained how the economy, culture, and social conditions found in extreme poverty neighborhoods are the antithesis of practices associated with steady employment and wholesome family life.

Various researchers (Brooks-Gunn et al., 1993; Duncan et al., 1994; Wilson, 1991) have shown that areas with 40% or more of residents living in poverty qualify as poor ghettos, or "concentrated poverty areas". Research reported by the ERIC Clearinghouse (Corporate Source, 1991) found that schools located in high mobility, low income, less educated, and "unstable school districts" tend to have the highest rates of failure and dropout, which further highlights the interacting of socioeconomic variables upon achievement.

Brooks-Gunn et al. (1993) report that between 1970 and

1980, the amount of poor people living in high-poverty neighborhoods increased 36%. Poor minority neighborhoods found in larger cities in the Northeast and Midwest were especially hit hard by deterioration and social breakdown (Brooks-Gunn et al., 1993; Jargowsky & Bane, 1990; Mayeske, 1973; Wacquant & Wilson, 1989; Wilson 1987, 1991a).

Most environmental studies that examine the correlates of achievement ignore the impact of wider socioeconomic considerations. Neighborhood-specific studies differ from others cited in this review in that they (a) are more concerned with the impact of the larger community on the child; (b) attempt to explain a portion of the variance unexplained by traditional measures; (c) attempt to get at root problems rather than identify mere symptoms; and (d) do a better job of identifying a bundle of characteristics which best characterizes a neighborhood. They seldom attempt to investigate, however, the effects of an interactions between family, neighborhood, and school variables.

Much of the work on neighborhood effects during the period Wilson (1991a) describes as a low production era for serious empirical studies on the effects of environment was performed by one main researcher and his associates. Levine et al. (1973) studied census data and children attending 122 elementary schools in a large urban district, and found that four variables - percent of female headed households, percent

of families with insufficient plumbing, number of people residing per home, and percent of occupied housing units - explained 75% of the variance in 6th grade achievement scores. Data on race and ethnicity were purposely not included in the main analysis in order to gain a better portrayal of neighborhood effects. A sub-sample of 50 black schools showed no significant independent relationship between percent of female heads of households and achievement. The authors concluded that concentrated urban poverty leads to social and institutional disorganization over and beyond the effects that poverty by itself exerts.

Levine et al. revisited the data in 1974, and reconfirmed earlier findings about the negative effects of concentrated poverty. In addition, they found that achievement averages tend to be uniformly low in older and denser neighborhoods, with high proportions of low-income female headed families which are disadvantaged in terms of economic and social resources. The researchers noted that it would be erroneous to conclude that female-headed households, or any one variable, causes poor performance. Rather, these conditions are seen as symptoms of neighborhood conditions gone awry.

Mayeske et al. (1973) performed a complicated and detailed analysis on the achievement status of our nation's students. Findings drawn from this study include:

- The independent relationship between family

structure and school achievement among black males appears to be higher in the metropolitan north than in the non-metropolitan north or the south. The reverse was true of females, and;

- Some of the disadvantages associated with living or growing up in concentrated poverty neighborhoods, such as getting caught up in negative street cultures, may be somewhat greater for disadvantaged males than females.

Meyer and Levine (1977a) studied grade school data gathered from the school districts of 5 large cities. Race was excluded in order to better understand the effects of concentrated poverty and related social characteristics on achievement. Major findings include:

- Reading levels were highly predictable based on knowledge of neighborhood characteristics;
- Findings were highly consistent from year to year, regardless of the nature of the independent and dependent variables used in the analysis;
- Various neighborhood characteristics tended to denote differing aspects of social status & urban organization, and;
- Findings of the study indicated that concentrated poverty and related characteristics (i.e.- poor housing, family disorganization, population density, etc.) are associated with low achievement in the public schools.

Meyer and Levine report that, "Once the problems characteristic of inner city neighborhoods reach certain threshold points in severity and frequency, the institution tends to operate ineffectively and/or dysfunctionally," (p. 36).

Although poverty related "threshold points" for

neighborhoods were not identified in the Meyer and Levine study, Levine, Keeney, Kukuk, Fort, Mares, and Stephenson (1979) cite other studies which found that (a) juvenile delinquency rates among middle and older elementary students accelerate when 90% of students are below national norms in reading, and (b) black achievement is effected by 45% or more "black enrollment", while Whites aren't impacted until black enrollment reaches 75%. When problems in poverty schools go unsolved, a negative exponential effect begins to take place. Levine and Havighurst (1992) and Levine & Levine (1996) identified 35-40% poor and minority enrollment as the threshold point which frequently determines the academic effectiveness of many urban schools.

Thompson and Smidchens (1979b) add to the threshold debate by reporting that a decrease of minority school population from 25 to 15 percent produces noticeable positive change in the educational environment for Blacks in the schools they attend. The authors caution against concluding cause and effect by citing an example which drives home the point of faulty interpretation of statistical findings: It is a known fact that there is a high correlation between ice cream consumption and drownings in the month of July. The causal variable behind the high correlation, however, is hot weather and high mean temperatures. Race and achievement work in much the same way.

Anderson et al. (1992; 1993) found that students of high poverty public schools, no matter the level of their family SES, have lower achievement and have a greater need for special education services than children from more affluent schools. Gallagher (1993) studied seven neighborhoods, along with corresponding schools, and found that an additional 10% of students not eligible for free or reduced lunches translated into an additional 4% of students being able to pass a proficiency test at the elementary school level.

Meyer and Levine (1977b) again looked at data from 3 school districts in one large city. They sought to test (a) whether school neighborhoods can be grouped into useful homogeneous types, and (b) whether neighborhood type predicts achievement above and beyond standard indicators. The first point was proven true when the authors came up with fifteen typologies by way of factor and cluster analysis. For the second point, it was discovered that neighborhood type significantly improved the prediction of academic achievement over and above variance attributable to the best socioeconomic predictors.

Kukuk, Levine, and Meyer (1978) studied data on school districts from 6 large cities and found that the impact of concentrated poverty on achievement was significant, and that variables such as family structure and density will transmit much of the association between race and income and

achievement in big city schools. Additional findings from the Kukuk et al. study included the fact that (a) some predominately low-income white neighborhoods were also high on social disorganization defined by variables other than race, and (b) although big city neighborhoods which have high percentages of black residents tend to be low in income, high in levels of female-headed households, high in overcrowded housing units, and low in school achievement, it would be erroneous to claim that one factor, such as female-headed homes, by itself causes low achievement. Such measures are merely symptoms of a larger overriding problem - social disorganization and poverty.

Levine et al. (1979) continued the line of research by studying data gathered from 7 large urban areas. They reconfirmed previous findings that social disorganization as defined by such neighborhood variables as disrupted families, high housing deterioration, low income, low education level, high mobility, high crime rate, and high density all work in concert to negatively impact achievement, and although the variable "percent females separated" was one of the better neighborhood predictors of achievement. Levine and his associates stressed that we cannot say that female-headed families are somehow inferior; only that they are characteristic of widespread disorganized neighborhoods.

Garner (1989) studied foreign census data and student

surveys in order to ascertain the impact of neighborhood deprivation on the achievement of Scottish high school seniors and recent graduates. He employed a hierarchical linear model, and controlled for pupil attainment at entry into high school. A negative association of a deprivation index (combined individual and neighborhood SES data) with educational attainment was found. Twenty percent of the variation between neighborhoods was explained by neighborhood deprivation. The variation left unexplained by neighborhood deprivation was also statistically significant, suggesting that there are processes working at the neighborhood level not explained by the existing model - a reason for more investigative research.

Using the large Panel Study of Income Dynamics data set, Datcher (1982) conducted one of the few longitudinal studies that examines the impact a community has on academic achievement. After controlling for various neighborhood and family variables, she found that 10 percent increments in neighborhood income correlated with tenth of year increases in educational attainment for both black and white males. Crane (1991) cites a group of researchers who expanded Datcher's analysis in an unpublished paper. Both male and female subjects were included in the analysis:

For male students, living in an area in which the proportion of female-headed families was two standard deviations (8 percentage points) higher than the mean meant that educational attainment was reduced by a quarter of a year. An increase by two

standard deviations (10 percentage points) in the rate of welfare receipt reduced schooling by half a year...For female students, living in areas in which the male unemployment rate was two standard deviations higher than the mean meant educational achievement reduced by half a year. An increase of 8 points in the proportion of female-headed families reduced schooling by a quarter of a year, and an increase of 8 points in the rate of welfare receipt reduced it by a little less than a half year, (p. 300).

Crane himself utilized 1970 Census data representing two million people to examine the relationship between neighborhood characteristics and drop out rates on one hand, and neighborhood characteristics and teenage childbearing on the other hand. Although there was some concern with sampling bias (i.e.- too high a number of teen parents dropped from the analysis for certain reasons), the results still appear meaningful and useful. A large and significant negative relationship was found for older and poorer neighborhoods, particularly urban ghettos. Elsewhere, the effects were much smaller, though not insignificant. The surge in probabilities of dropping out and childbearing were significant for both blacks and whites in concentrated poverty neighborhoods.

Crane also found a strong relationship between the occupational status of heads of households and educational attainment. Dropping out of school was likely to occur among black and white youth living in neighborhoods where fewer than 5% of the workers had professional or managerial jobs. Tendencies outside larger cities were noticed, but they were

not significant. Problems with how the government defined "Hispanic" from one region to another kept findings from being clear for that particular ethnic group.

According to Brooks-Gunn et al. (1993), neighborhoods impart considerable advantages and disadvantages to children growing up in them. The presence of neighborhood affluence, especially among whites, had the most powerful of neighborhood effects for teenagers. The study found income to be more associated with IQ, dropping out, and out-of-wedlock childbearing, than was parental education. The effect persisted even when the researchers controlled for family differences. Home learning environment was significantly associated with IQ at age 3. Home physical environment and parental warmth and receptiveness were not found to be significantly related to child IQ levels. When looking at school dropout and childbearing, low-income minority youth benefitted somewhat from living in affluent neighborhoods, but not to the degree it did for affluent white teens. There were equal benefits, however, when considering IQ.

Klebanov, Brooks-Gunn, and Duncan (1994) investigated the impact family and neighborhood poverty had on maternal parenting and social support strength. Neighborhood poverty explained a significant portion of the variance above and beyond family poverty:

Residing in a poor neighborhood was associated with

worse maternal outcomes, specifically the provision of a more negative physical environment and less maternal warmth...The presence of low-income neighbors may have played a role by generally lowering the quality of housing in the neighborhood which indirectly might affect mother's efforts to provide a positive physical environment, (p. 451).

It was also interesting that family poverty was not associated with maternal warmth and responsiveness to children, whereas neighborhood poverty was.

Some studies investigate the need to examine parallel family and neighborhood measures. A rare few seek to examine the interaction of multiple factors. Duncan, Brooks-Gunn, and Klebanov (1994) found that although family income was decidedly more powerful than neighborhood income differences, the latter proved to be a significant determinant of IQ scores and externalizing problem behavior (taking on negative norms of the neighborhood).

Kupersmidt et al. (1995) examined the interactive relationship between individual, family, and neighborhood variables, and the impact they have on the peer relations of children. They surveyed 1,271 fifth graders (representing six public schools) and their parents concerning family and peer attitudes and behaviors. The results were matched with school data, which were then compared to census data. A number of multivariate regression runs revealed the following results:

- Neighborhood context was associated with childhood aggression over and above the variance accounted for by family characteristics;

- Neighborhoods can make a difference. For example, low-income kids from low-supervision homes who lived in middle SES neighborhoods demonstrated less aggressive behavior than their counterparts who lived in low SES neighborhoods. Low income whites who lived in low SES neighborhoods had better social adjustment and peer acceptance than their suburban neighborhood counterparts. In general, middle SES neighborhoods afforded more buffers to a greater number of negative societal influences than low SES neighborhoods, especially for minority low-income residents;
- Single-parenthood was associated with children's adjustment. The influences were moderated, however, when income and SES were taken into account;
- Low-income, single, black mothers who lived in low SES neighborhoods provided less supervision of their children;
- On the average, low income black children who lived in single parent homes from low SES neighborhoods displayed more aggression than other children. Young males were easier targets for gang membership;
- The differences between boys and girls remained irrespective of their neighborhood surroundings;
- Children from middle SES neighborhoods had more social relationships with grade mates outside of school than low SES neighborhood children;
- The effects of neighborhood influences on childhood behaviors appear to work in a complex fashion: Two realities coexisted simultaneously - on the one hand neighborhoods themselves have specific characteristics that influence a large percentage of residents both directly and indirectly, while on the other hand ultimate effects also depend on the domain of the child and his or her family's functioning level, and;
- The mediating role of parenting behavior and exposure to opportunity structures appeared to explain the situational successes of some low-status children who resided in low-status neighborhoods.

In addition, important points on methodology and theory development were discussed in the Kupersmidt et al. study. Four research perspectives of the potential impact of neighborhoods on social and behavioral adjustment were identified:

- The Risk Model - a simple main effects approach which suggests that children from certain types of families and neighborhoods are more negatively affected by neighborhood influences than children from other neighborhoods. These studies usually lack individual-environmental interaction inputs;
- The Protective Model - studies that might seek to identify factors that protect a child living in stressful environments. Certain low-risk neighborhoods have the potential to operate as a protective factor for children of high-risk families. Conversely, little impact would come to low risk children living in low-risk neighborhoods;
- The Potentiator Model - suggests that low-risk neighborhoods would have an enhancing effect on average or marginal children from low-risk families. All other children would be unaffected by the environment, and;
- The Person-Environment Fit Model - attempts to identify "mismatches" between the person and their environment. It supports a view that neither the individual nor the environment is pathological. It is the particular fit between the two that produces maladjustment. This model appeared to mesh well with the overall findings of the Kupersmidt et al. study.

Although limited research has been conducted to substantiate the validity of each model, the researchers contend that all four show at least some promise in helping to fill some of the gaps in the literature. It is also important to remember that they do not claim to have found the causes of

childhood aggression. Their conclusions are mostly descriptive in nature.

Levine and Havighurst (1992) reported on studies of the Gautreaux Housing Project of Chicago, which sought to relocate inner-city public housing residents to outlying Chicago neighborhoods. They describe how mothers of transplanted Black children felt peer influences were significantly improved, and how this was thought to be positively associated with improved grades their children received. In addition, single mothers found meaningful employment, which helped to increase their sense of self-control and prompt them to have higher educational aspirations for their children. "Relocation to the suburbs may be one of the most potent and successful social policies for alleviating the plight of underclass children and youth growing up in concentrated poverty neighborhoods in big cities," (Levine & Havighurst, 1992, p. 337). Kaufman and Rosenbaum (1992) also reported on the Gautreaux Project and summarized similar positive findings. The success of the Gautreaux Housing Project program has made city planners stop and take notice.

2.91 Gaps And Understandings About Neighborhood Effects

Of the limited number of studies that examine the impact of neighborhoods on the achievement of students, most are recent studies that call for more research to be conducted. Many do not directly investigate the impact of neighborhoods

on academic achievement, but rather look at a variety of school and social issues such as educational attainment and school dropout, IQ, social adjustment, and child bearing. Some trends are beginning to surface, while many other findings remain inconclusive. A few tentative conclusions are presented here.

We know that conditions in many inner-city and older neighborhoods are at a stage of stress and deterioration, especially in large cities (Brooks-Gunn et al., 1993; Corporate Sources, 1991; Duncan et al., 1994; Kukuk et al., 1978; Kupersmidt et al., 1995; Levine et al., 1974, 1979; Levine & Havighurst, 1992; Levine & Lezotte, 1990; Meyer & Levine, 1977a, 1977b; Morgan, 1979; Wilson, 1987, 1991a, 1991b). Concentrated poverty areas have:

- A large percentage of low-status and unemployed individuals;
- A majority of black Hispanic, and other race minority families;
- A large percentage of female and single heads of households;
- More problems with the fear of crime and aggression; and
- A problem with achievement motivation.

Poor minority neighborhoods found in larger cities in the Northeast and Midwest were especially hit hard the last half of this century (Brooks-Gunn, 1993; Jargowsky & Bane, 1990; Mayeske, 1973; Wacquant & Wilson, 1989; Wilson 1987, 1991a).

Concentrated poverty at the community and neighborhood levels appears to explain a significant part of achievement score variance that is not accounted for by traditional statistical indicators (Brooks-Gunn et al., 1993; Crane, 1991; Datcher, 1982; Gallagher, 1993; Garner, 1989; Klebanov, 1994; Kukuk et al., 1978; Levine et al., 1973, 1974, 1979; Meyer & Levine, 1977a, 1977b). The introduction of various independent variables into statistical models does not account for all the variance when predicting academic achievement. Concentrated neighborhood poverty also seems to be highly correlated with childhood aggression and social maladjustment (Brooks-Gunn et al., 1993; Crane, 1991; Duncan, 1994; Klebanov, 1994; Kupersmidt et al., 1995).

Schools that reach a certain "threshold" of poor and disadvantaged minority enrollments appear to cease functioning as effectively as they formerly may have functioned (Levine et al., 1979; Levine & Havighurst, 1992; Levine & Levine, 1996; Meyer & Levine, 1977a; Thompson & Smidchens, 1979b). Research is still investigating this phenomenon, but for now we can tentatively speculate that the threshold point is some where around 35-40% enrollment. Even individuals from relatively high SES families who attend concentrated poverty schools seem to be negatively effected if the enrollment of poor and disadvantaged students reach higher levels (Anderson et al., 1992, 1993; Levine et al., 1979).

Some schools and neighborhoods located in the inner-city prosper despite negative influences, especially if there is good leadership, salient parent involvement, challenging performance standards, and the appropriate expenditures of funds to open up channels of opportunity (Benjamin, 1980; Christner et al., 1991; Corporate Sources - Equal Employment Opportunity Commission, 1991; Kupersmidt et al., 1995; Levine & Havighurst, 1992; Levine & Lezotte, 1990; Levine & Levine, 1996).

Although studies of poor white neighborhoods may reveal results showing similar social dysfunctioning (Crane, 1991; Kukuk et al., 1978), and minority single-head of household females are negatively effected academically (Datcher, 1991; Mayeske et al., 1973) while also being the most affected economically (Farley, 1995), studies show that black males living in concentrated poverty neighborhoods are achieving at lower rates and are having the most problems with social adjustment (Datcher, 1991; Kupersmidt, 1995; Mayeske et al., 1973).

It is quite likely that the independent impact of female and single-head of households on student achievement is overrated. The fact that there is a strong association is probably more attributable to the fact that concentrated poverty breeds and encourages social dysfunction (Levine et al., 1973, 1974; Kukuk et al., 1978; Kupersmidt, 1995; Levine

et al., 1973, 1979). This conclusion drawn from neighborhood studies confirms those found in the single parent effects literature (section 2.30).

Some of the gaps in the literature are larger than others. More research needs to be conducted to help fill these gaps in our understanding about the effects of neighborhoods. Not enough is known about direct versus indirect effects of neighborhoods. Studies need to employ various path analyses and other multivariate techniques in order to gain a better understanding of the progression of problems. The concept of poverty thresholds for schools, as well as urban-suburban-rural and geographic regional differentials is far from being adequately understood. The larger topic of neighborhood deterioration and how it effects childhood lethargy and apathy is an interesting, yet understudied area.

Smaller, though no less important, gaps that exist in the literature include the need to know more about how:

- The amount and type of out-of-school friendships that are formed between children by neighborhood;
- How neighborhood type impacts differences in parenting style;
- The real academic and social impact of race and gender by neighborhoods;
- Possible impacts historic racism might have on particular neighborhoods; and
- The real impact of crime and other social dysfunctioning on academic performance.

Lastly, more research is needed on poor minorities that do make it out of their predicament despite family problems and social impediments. Some of these findings exist in preliminary forms, but more fine-tuned efforts are needed.

2.101 Rationale Of The Study

Further empirical research is needed to enhance understanding of neighborhood characteristics that affect student and school performance, and the possible implications for analysis regarding identification and understanding of unusually effective schools, possibilities for improving student performance, and related topics.

A lack of neighborhood effects studies constitutes the biggest gap in the literature. There are many missing pieces in our understanding of the impact of neighborhoods on both the academic and social development of children. The influences of neighborhood on academic performance have not been totally ignored, yet a review of the research reveals a need for much more research (Bronfenbrenner, 1989; Brooks-Gunn et al., 1993; Crane, 1991; Jencks & Meyer, 1990; Kukuk et al., 1978; Kupersmidt, 1995; Levine et al., 1973, 1974 1979; Meyer & Levine, 1978a, 1978b; Morgan, 1979). The literature also provides both theoretical and methodological justifications for more research. Potential benefits of increased study could have important implications for both researchers and practitioners.

Another rationale exists in that mid-to-small size cities are often left out of neighborhood effects studies, yet they are often privy to social phenomenon that appear to spill over from large metropolitan areas. Research has shown the Midwest to be one of the more vulnerable areas for negative effects of ghettos and underclass problems (Brooks-Gunn, 1993; Jargowsky & Bane, 1990; Mayeske, 1973; Wacquant & Wilson, 1989; Wilson 1987, 1991a). I am assuming in this study that school districts from medium and small size cities are just as concerned as are officials from larger cities about the environmental and neighborhood effects on achievement.

Future research efforts should steer away from single perspective studies towards those that look at wider socioeconomic structure. A better grasp of multi-faceted studies (e.g.- how individual, family, and neighborhood variables interact together), as well as typological studies (i.e.- what neighborhood combinations enhance or impede growth) are both needed. Research that is aimed at identifying only one or two impediments gives only a partial picture of the problem, thus leading educators to believe that answers are much simpler than they really are.

A desire to catch as many kids before they fall through the cracks of our schools is the ultimate justification for this study and others like it. School officials need to become better informed about the forces that work against the goals

of education for disadvantaged children. Allowing some kids to fail, while others succeed is not an acceptable way to run the business of accessible and equitable education. Unless school officials have access to pertinent and useful research, they are left to speculate on the question of where and how to focus their time and resources.

CHAPTER III

METHODOLOGY

3.10 Review Of Research Methods

This study will rely on quantitative research methods to accomplish its goals. The researcher has chosen cluster analysis for the purpose of arranging and identifying neighborhood and school types, factor analysis to allow for the maximum inclusion of environmental impacts, and multiple regression to determine how much of the variance is explained by the interaction of multiple variables. A brief review of each of these methods is presented, followed by a description of the design and methodology I will employ to carry out this research.

According to Berven and Scofield (1982), cluster analysis (CA) seeks to define discrete groupings of variables or objects so that those within any group are similar to one another and relatively dissimilar to those in other groups, (p. 302). Jones and Pinkney (1991) and Vogt (1993) define CA as any of several procedures in multivariate analysis designed to determine whether individuals, or other units of analysis, are similar enough to fall into groups or clusters.

Cluster analysis is a relatively new procedure that has grown in popularity since 1963. Bachelor and Buchanan (1984) reviewed both the research and methodology literature on

cluster analysis and concluded that the field of education greatly under utilizes the technique:

Wherever there are large sets of data consisting of many observations such as test scores for individual students, classrooms, or schools, cluster analysis has great potential to assist in sorting out groups of students, classrooms or schools that appear within the data to be more alike than different. It is especially useful when we have several observations for each, (p. 6).

Bachelor and Buchanan underlined the utility of cluster analysis in stating that most schools officials are guilty of lumping students together without careful thought. CA helps to discriminate variables with much more objectivity and takes the guess-work out of the grouping process.

The literature encourages researchers to become familiar with the differences between various clustering techniques. The same data can often give different results depending on the technique used. This is not bad in itself as long the researcher clearly understands and describes which measures are used and why. Bachelor and Buchanan (1984), Berven and Scofield (1982), Blashfield (1980), and Fisher et al. (1989) all speak about the need to make intelligent decisions on which clustering method to use. While the majority of clustering techniques are hierarchial agglomerative types (start with many groups and progress to a few), others employ iterative partitioning (start with one large group, then discriminate into an increasing number of groups based on

differing characteristics).

An important consideration has to do with determining the number of groups I tell the clustering model to divide into. Since the mathematics of the procedure categorize variables into groups without regard for meaningfulness, I will have to consider the issue of the usefulness of groupings. This is a common issue with CA, but it can be adequately dealt with. Jones and Pinkney (1991) suggest: (a) getting to know the characteristics of the data well beforehand, and (b) performing a series of trial clusters until the solutions come in line with the goals and concepts of the study. Because the technique calls for visual evaluation (e.g.- comparing plots, means and standard deviations), the person performing the research is likely the best judge of what number of clusters best fits the data set.

Blashfield (1980) suggests that the following steps be taken when utilizing cluster analysis:

- Provide an unambiguous description of the analytic method;
- Specify the similarity measure;
- Specify the computer program used;
- Explain the procedure used to determine the number of clusters; and
- Specify the procedure used to obtain naturalness and meaningfulness in the cluster solution.

I will adhere to the Blashfield suggestions. In Addition,

Jones and Pinkney (1991) found that most CA computer packages have discovered useful ways of isolating outliers in the analysis.

The information to be "clustered" in this study comes from census and other government data. Some may point out that the usage of census data has limitations. Morgan (1979) reports that census data are time and place bound, have measurement errors, often are only indirect measures of the variables they represent, are based on varying samples, and have slight changes in definitions over time (p. 7). Even with these limitations, Morgan states that census data are widely used in educational research, and the only aggregate data available over several time periods. Other researchers such as Garner (1989), Kukuk et al. (1978), Kupersmidt (1995), Levine et al. (1973; 1974; 1979), and Meyer and Levine (1977), have demonstrated that the usage of census data can result in very significant and meaningful results for educators. This is especially true when attempting to identify various neighborhood types.

A benchmark case for the utilization of cluster analysis to delineate census data into meaningful groupings of neighborhoods was performed by Boughan (1990a; 1990b; 1991a; 1991b). He applied 90 relevant demographic variables to the statistical technique and arrived at 24 distinct and useful neighborhood classifications to help with a community

college's effort to conduct a follow-up study. As time went on, the number was reduced to 13, and meaningful results were still obtained from the data. This and other studies like it demonstrate the power and usefulness of cluster analysis when applied correctly.

A second procedure, multiple regression analysis (MRA) will be employed in this study. According to Emmons et al. (1990), MRA was the third most widely used statistical procedure following simple correlation and analysis of variance (ANOVA), between the time period 1972-1987. It has since increased in popularity even more. MRA is defined by Vogt as, "Any of several related statistical methods for evaluating the effects of more than one independent variable on a dependent variable," (p. 146).

Polkosnik and Wisenbaker (1986) define MRA as, "A general statistical technique through which one can analyze the relationship between a dependent or criterion variable and a set of independent or predictor variables," (p. 166). Multiple regression has the advantage of being able to handle a number of variables while simultaneously looking at all the relationships between variables. The determining coefficient (R^2) for MRA is arrived at by squaring the multiple correlation figure MR or R. The R^2 statistic represents the amount of variance in the dependent variable which is

explained by the set of independent variables.

Multiple regression demands six main assumptions about the data:

- Characteristics are accurately measured;
- The data are measured on an interval scale;
- The data are normally distributed in the population;
- Variance are homogeneous across samples;
- A linear and additive relationship exists; and
- The independent variables do not have high multicollinearity to them.

However, multiple regression analysis is relatively robust in obtaining useful results despite some violations of the assumptions (Vogt, 1993).

Liu (1981) reports that because of the nature of most educational data, it cannot help but to have some levels of multicollinearity already built in. Rather than not use the method at all - a decision that could do more harm than good - Liu urges educators to use factor analysis (FA). Vogt (1993) describes FA as any of several computer based methods of analysis that enable researchers to reduce a large number of variables to a smaller more manageable number. The grouping of variables helps the researcher's efforts to study larger categorical themes (example - studying SES as opposed to separately listing numerous variables singularly). Most factor scores are then entered into a multiple regression model. This

practice allows the researcher a better chance at accounting for as much of the variance that can possibly be explained.

3.20 Population Sample And Historical Setting

The units of analysis for the study are the elementary schools of two school districts located in two midwest cities of semi-large to moderate population sizes. I will use a model of classifying cities and communities similar to that employed by Ornstein and Levine (1989):

- High-status metropolitan communities - large cities which have a minimum population base of 200,000, with a high proportion of professionals and managers;
- Low-status metropolitan communities - large cities which have a minimum population base of 200,000, with a low proportion of professionals and managers;
- Main big cities - large urban communities of more than 200,000, with moderate to average proportions of professionals and managers;
- Medium community cities - urban areas which have between 25,000 and 200,00 residents, and moderate or greater amounts of professionals and managers; and
- Small community cities - urbanized townships with less than 25,000 persons, and moderate-to-smaller amounts of professionals and managers.

District Y is located in a city with a core population of 350,000 and a metropolitan population of 600,000. The city in which school District Y resides appears to qualify as a "main big city" community. The district is comprised of a racially, linguistically, religiously, and socioeconomically diverse

student population with a total student enrollment of 43,577. A student enrollment breakdown by race reveals a 62.3% Caucasian, 29.4% African American, 5.6% Hispanic, 1.4% Native American, and 1.3% Asian mix for the 1994-95 school year. The district has four smaller alternative schools, serving grade 7-12 at-risk and problem students.

A review of government documents, as well as interviews with local authorities, indicated that neighborhoods play a significant role in the city's history and local development. Poorer sections of town have experienced their share of socioeconomic hardships, including historic massive "white flight" from inner-city neighborhoods during the early 1970's. Although not as extreme as is the case with larger cities, poverty remains a problem in City Y as witnessed by the presence of five federal housing projects. The poverty rate is at 11.5%, and the median household income for the city is \$26,927.00. Eighty-five percent of the state's 3.6% African American citizens live in this city, with seventy percent of them living in one specific part of town. Mexican Americans also have a high concentration of residency in one particular section of town.

District X is located in a city with a core population of 200,000, and a metropolitan population of 220,000. It appears to qualify as a "medium-city community". Although it is not as racially diverse as City Y, City X does have clear

socioeconomic and class delineations. District X has a total student enrollment of 31,251. A breakdown of enrollment by race reveals that 88.28% of students are Caucasian, 5.16% African American, 3.03% Asian, 2.41% Hispanic, and 1.12% Native American. The presence of an international college campus help provide an atmosphere of cultural diversity for City X.

Although City X lacks some of the manifestations of large urban problems such as federal housing projects and rampant crime, it does possess an 11% poverty rate, and 13 of the 45 census tracts are designated socioeconomic target areas by government officials. Block portions of several other census tracts also carry that designation. The median income for the city is \$28,000.00. Interviews with school officials revealed a concern with many of the same social problems found in school districts of larger cities.

3.30 Limitations of the Study

This study is partially limited by its dependence on the use of standardized achievement scores. While their results may be good indicators of performance, they may not be the most accurate indicators of learning. The usage of standardized achievement scores to determine general student academic achievement is, however, widely accepted by educators, politicians, and laymen alike.

A problem presented in studying school District Y

involves the fact that it has a desegregation plan in effect, thus cutting down on the number of neighborhood schools that can be included in the analysis. Since 1976, District A has implemented a district-wide school desegregation plan involving the utilization of clustered, paired, and magnet schools, as well as racial balance busing and open enrollment policies. Many of the schools are located in the city's five main working-class enclaves. A compromise is involved in this study: I will utilize schools from the district that have a 70% or more neighborhood enrollment. The study thus assumes that what might be called "70% neighborhood schools" still encounter many of the environmental influencers that are inherent in 100% neighborhood schools. Based on the proposed 70% criteria, 32 out of 56 elementary schools qualify, with 24 of them originating from inner-city and transition neighborhoods. A few schools located in concentrated poverty areas of town unfortunately had to be left out because of low home attendance rates.

Although schools found in District X are historically neighborhood institutions, a liberal transfer policy affects their home attendance patterns also. Twenty six out of thirty three elementary schools meet the 70% criterion. An additional 3 middle schools that house 6th graders, brings the total to 29 schools utilized for analysis. Eighteen of these schools are located in low-income and government "target" areas and

transition neighborhoods, while the remaining 11 are located in middle-to-upper class neighborhoods. If the differential effects of middle-school organization appear to be generating confounding interference in analyzing and interpreting the data, the middle school population will be dropped from the analysis.

The reader is also reminded that the analysis was performed in one mid-sized, and another smaller-sized city from the midwest. Although both confront notable problems associated with poverty, at-risk youth, and student underachievement, the dynamics of smaller cities may not be the same as those from a large urban center with a much bigger population. Nonetheless, America is full of less-than-large sized cities in need of answers to social problems.

I will be careful not to make the mistake of indulging in an "ecological fallacy" - making generalizations about individuals based upon findings from group level analysis. There is, however, much value in studying aggregate data, especially when they identify certain trends that are useful in formulating policy. A related concern might be the usage of status as opposed to process data. It could be argued, for example, that studies of actual parent-child interaction of single-family homes would yield more useful results than studies examining family and neighborhood status. The writer accepts the view of Kupersmidt et al. (1995), who conclude

that there is a need for both, a stance which allows for a better understanding of the wider picture. One form of research complements the other.

This study does not (and could not) attempt to answer all the questions surrounding the impact of neighborhoods and environmental effects. Neither does it attempt to show how intervening variables and mediating effects come into play. Such a study is difficult, very costly, and beyond the scope of this research. What is provided here is an attempt to understand one piece of a large and complex research puzzle that deals with environmental impacts. In addition, this study only investigates correlational relationships between variables, which are not direct assessments of causation.

3.40 Procedure

The first activity required to carry out this study is to secure the necessary demographic data for analysis. Block group data were obtained from the 1990 Federal Census Count. Other pertinent neighborhood data are gathered from a variety of local government city planning agencies. Various government documents will be contrasted and compared to see if they report the same thing. The second activity is to secure achievement data for both districts.

The third activity will be to make a determination of how to divide the city into meaningful units for analysis. An overlay of census tracts and school attendance zones will

provide the basic units of analysis for this task. Prior neighborhood studies have found that census tracts do a fair job of approximating neighborhoods (Boughan, 1990a; 1990b; 1991a; 1991b; Meyer & Levine, 1978). Census tract block groups in this study closely match school attendance zones of both districts.

In addition, both cities had conducted considerable prior work on identifying historic neighborhoods as identified by neighborhood associations and local historians. These neighborhood assessments were arrived at by a process which compared findings from local grassroots organizations and neighborhood associations, with data gathered from local documents and histories. Although school attendance zones and census block groups form the backbone of how neighborhoods will be defined in this study, historic neighborhoods might also prove useful, especially in a process whereby a cluster analysis is needed to reduce a large number of neighborhoods.

The tedious task of systematically matching up federal census tracts with local school attendance zones was accomplished the old fashion way - the combining of various government maps by hand. The following is an hypothesized classification of neighborhoods found in District Y, based on pre-analysis investigation of census data:

- 7 schools located in depressed poverty attendance areas (Type 5) - as characterized by such factors as older housing (built before 1940), high rate of

children in poverty (25-100%), low incomes (\$5-\$20 thousand), high rate of female-headed homes (10 to more than 30%), and high minority populations (30-80% black and/or 5-50% Hispanic);

- 8 schools located in semi-depressed attendance areas (Type 4) - as characterized by such factors similar to that listed above, with the exception of slightly newer housing (1940-1960), and slightly higher incomes (\$20-\$40 thousand);
- 7 schools located in transition neighborhood and mixed socioeconomic attendance areas (Type 3) - as characterized by such factors as older but good condition housing, newer housing (1955-1980), lower rates of children in poverty (1-45%), higher incomes (\$20-\$50 thousand), lower rates of female-headed homes (5-25%), and lower percentages of minorities (1-20% black, 1-15% Hispanic);
- 6 schools located in middle-class attendance areas (Type 2) - as characterized by such factors as more recently built houses (1960-1985), manageable rates of child poverty (0-10%), moderate-to-medium incomes (\$25-\$60 thousand), manageable rates of female-headed homes (3-10%), and small-to-moderate numbers of minorities (1-15% black and 1-3% Hispanic), and;
- 4 schools located in upper middle class and well-to-do attendance areas (Type 1) - as characterized by such factors as almost-new to new homes (1970-1990), Manageable rates of child poverty (1-15%), mostly high incomes (\$25-\$150 thousand), manageable female-headed homes (1-10%), and small numbers of minorities (0.5-10% black, and 1-10% Hispanic).

Levine and Levine (1996) make note that a five-class structure is typical in most urban cities. The reader should note that phrases such as "mostly high incomes" (from #5) are used to describe the effects of particular areas with large ranges of incomes or other SES indices. The city's scattered cite housing program is partially the reason for this

phenomenon. I am convinced that busing by school officials and neighborhood integration efforts by city planners have not caused City Y to lose its usefulness for a neighborhood study.

As expected, District X has its own unique socioeconomic patterns and neighborhood histories. According to the same criteria used to discriminate neighborhoods for District Y, District X schools fall into the following hypothesized neighborhood categories:

- 9 elementary schools located in Type 1, "depressed", government target areas;
- 3 elementary schools located in Type 2, depressed to semi-depressed areas;
- 2 elementary schools from Type 3, transition neighborhood and mixed SES areas;
- 5 elementary schools from Type 4, middle class to upper-middle class neighborhoods;
- 7 elementary schools from Type 5, low upper-class and higher SES areas;
- 3 middle schools which house 6th graders - one residing each in a type 5, type 4, and type 3 attendance area.

Of the eight elementary schools eliminated because of the 70% school attendance criteria, two of them were from Type 1 neighborhoods, with one school from Type 2, four from Type 3, and one from Type 4. More thorough discrimination of neighborhood type will be performed by way of SPSS Quick Cluster analysis as the study progresses. This beginning analysis has provided the researcher with an understanding of

nuances a computer may not pick up, however.

A final map of neighborhoods was built by combining the findings of census block group data, school attendance zones, and cluster analysis. Because it is a common practice in neighborhood effects research to first account for as much of school effects as possible that is due to data on school characteristics and on census tracts, I will also gather school profile information in constructing variables depicting school type.

3.50 Null Hypotheses & Research Questions

The following null hypotheses will address the impact environmental and neighborhood characteristics have on academic achievement:

H₁ There exists no identifiable set of environmental variables which accurately discriminate one neighborhood type from any another for purposes of meaningful educational research.

H₂ There exists no significant relationship between school type and the achievement level of students in that school, once traditional academic and socioeconomic indices have been accounted for.

H₃ There is no significant relationship between the characteristics of a neighborhood and the achievement level of the school that serves that neighborhood, once traditional

environmental indices have been accounted for.

H₄ There is no difference in the results of studies which investigate the relationship between neighborhood type and school achievement for smaller-sized cities, as compared to the findings from studies of larger urban areas.

The addition of two broad-based, yet closely related research questions will also be investigated:

1. What findings from this analysis help to dispute, confirm, or improve upon those gained from previous research conducted in this area?

2. Will the analysis be able to identify schools that may qualify as Unusually Effective Schools - schools that succeed despite a profile that says they should not.

3.60 Dependent & Independent Measures

Scores from elementary school achievement tests will constitute the dependent measure for this study. I will use the results from 4th and 6th grade California Achievement (CAT) testing for District Y, and Metropolitan Achievement (MAT) testing for District X. Both were administered during the Spring of 1995. CAT equivalents for MAT scores provided by school officials from District X will be used in this analysis. Grade 5 is not a common testing year for the two districts. This study chooses not to utilize achievement scores from grades K-3 because of questions concerning the

reliability of early testing results (Levine & Lezotte, 1990).

The following school reported data will be factored and clustered to form the school type independent variable: Percent minority, percent low income, a school mobility index, age of building, and Chapter One services participation.

Environmental characteristics drawn from census data will constitute the remaining independent variables. They will also be utilized for cluster analysis of neighborhoods. Target census characteristics include: Housing condition (e.g.- vacancy rate, percent owner occupied homes, median rent, age of house), residential mobility, percent of population in poverty, percent of children in poverty, household income, percent unemployed, level of parent education, single parents as percent of heads of households, occupational status, population per square mile, population per household, percent minority, and crime rate.

3.7 Design and Data Analysis

The first step in data analysis will involve attempting to combine the schools from both districts in order to have one larger study (N = 61) as opposed to two smaller studies (N=32 for District Y, N=29 for District X). This is made possible because District X was able to convert MAT scores to CAT score equivalents. I will also look at the possibilities of combining all 6 scores (4th & 6th grade scores for math, reading, and language arts) into one Total Achievement Factor

Score for each school. Factor loadings and other statistical analysis will drive final decisions on whether to group subtest scores, or keep them separate.

The second step in data analysis will involve running correlation matrixes between the dependent and independent variables for school data. I will look at various plots of the dependent and independent variables to assess multiple regression assumptions, and detect the existence of possible outliers. This step also includes the need to determine which school variables can be factored. Preliminary multiple regression runs using those factor scores will give early indications of the strength of school variable correlations with achievement.

After accounting for all traditional school correlates, the third step in analysis involves constructing school types by way of cluster analysis. It is important to account for all possible school influences before proceeding to neighborhood impacts. Deciding which variables to include and which to eliminate in the various cluster models will be driven by information drawn from the review of the literature, awareness of local trends and patterns, and a determination of how the statistical coefficients line up. Preliminary multiple regression runs utilizing traditional school indices, factor scores, and cluster analysis scores will help determine which particular regression model I will employ.

The fourth step will involve looking at the correlation matrixes between achievement scores and census characteristics. This is a necessary step because neighborhood influences in this study will be defined by those things above and beyond traditional socioeconomic indicators already identified by previous research. Attention will be paid to which variables significantly add to the prediction, as well as which variables share a lot of the variance. Characteristics that do share a significant amount of the variance might have to be combined to form synthesized variables. This step will involve numerous computer runs to determine which combinations of variables are of value, and which are not. Once again, trial multiple regression and other statistical runs will keep me abreast of the progress I am making or not making.

The fifth step will involve the discrimination of neighborhoods. This process will be handled much the same way it was when discriminating school type. Neighborhood type will be defined by the following methods:

- Historic traditional classifications;
- SPSS Quick Cluster method using traditional socioeconomic (SES) variables; and
- SPSS Quick Cluster method using non-traditional SES variables not already accounted for;

One prerequisite of the cluster analysis procedure is to predetermine the number of groupings. This information is

needed to instruct the model, and must be based on intelligent understanding of the data. At this stage, pre-analysis of the data has already been performed. A series of trial statistical runs and close attention paid to regression coefficients will determine the number of groupings and the types of input variables to be used.

Once cluster analysis has created meaningful and useful groups, the study will turn to a final step utilizing multiple regression analysis. The design of the study calls for using neighborhood type as the last entry in a forced entry regression model. Several traditional socioeconomic indicators will precede these entries. The number of independent variables utilized will depend on findings from prior statistical manipulations. Once the optimal amount of variables have significantly explained as much of the variance as possible, various neighborhood type scores will be entered on both separate and combined district runs to determine how much of the variance above and beyond the traditional indicators can be explained. A determination will be made at that time concerning the predictive power of neighborhoods.

Chapter IV

Analysis Of The Data

4.10 Introduction & Pre-Analysis

Analyses of the data are presented in this portion of the study. First are the results for District X, followed by results for District Y, and then the combined results. A computer statistical analysis program - Statistical Package for the Social Sciences (SPSS) - was utilized to perform the analyses.

Factor analyses of CAT score and CAT score equivalents were performed (1) because both districts report academic achievement through math, reading, and language subtest scores by grade level, and (2) because, other considerations equal, it is desirable to reduce the volume of data available for analysis when doing so is feasible and dependable. Appendix A list six different ways to look at achievement using the raw scores resulting from the combining of subtest scores into single factor score categories: A total 4th and 6th grade score (total achievement), combined 4th and 6th grade scores respectively, and combined math, reading, and language respective scores.

In viewing Table I, one will note the following results of factor analysis of the achievement scores: There are high loadings within each factor, high amounts of variance commonly

Table I
Principal Components Factor Analysis*
Of Achievement Scores
For Combined Districts

Factor	Components Of Factor	Factor Loadings	Eigenvalue	% Internal Variance Explained
Total Achievement	Reading CAT 4	.95	5.18	86.4
	Math CAT 6	.94		
	Language CAT 4	.94		
	Language CAT 6	.92		
	Math CAT 4	.92		
	Reading CAT 6	.90		
All Language	Language CAT 4	.96	1.84	92.0
	Language CAT 6	.96		
All Reading	Reading CAT 4	.95	1.80	89.0
	Reading CAT 6	.95		
All Math	Math CAT 4	.95	1.80	90.0
	Math CAT 6	.95		
6th Grade Achievement	Math CAT 6	.98	2.81	93.7
	Reading CAT 6	.97		
	Language CAT 6	.96		
4th Grade Achievement	Reading CAT 4	.98	2.86	95.2
	Language CAT 4	.98		
	Math CAT 4	.97		

* One Factor Extraction - No Rotation; Kaiser Normalization; 61 cases

are shared between the subtests, and a large percentage of the internal variance is explained for each of the six factors. This method of reporting test results gave me a much clearer picture of what the achievement scores truly represented, as opposed to working with an undelineated total battery score. The results support the conclusion that the employment of factor scores for this study is valid and useful. The dependent construct for this study is well represented by the Total Achievement Factor Score listed in Appendix A. However, others ways of looking at achievement will also be included.

It became clear during the early stages of the analysis that the three middle schools included in the District X data set posed potential problems for two reasons. First, I could not account for influences possibly resulting from differences in elementary and middle school cultures. Second, when looking at census data, some variables were included twice because of overlapping geographic boundaries which exacerbated problems of multicollinearity. For these reasons, the middle schools were dropped from the analysis.

4.20 Results For District X

A look at a correlation matrix of achievement and school profile information revealed that percent poor, student mobility, and percent minority students correlated very well with each achievement score, as well as with each other. This

fact provided an early indication that socioeconomic status accounted for a very large percent of the variance in the prediction of student achievement. The relationships between achievement and other available school profile variables were not nearly as strong.

Total achievement plotted against percent of poor students showed a strong negative linear relationship, with a simple r of $-.93$. Student mobility and percent of minority students also correlated well with total achievement ($-.71$ and $-.61$ respectively); however, plots revealed that the relationships were curvilinear. The logs of student mobility and percent minority help to pick up that curve.

The three independent variables were then entered into a factor analysis to create a school SES indicator. Table II shows the results of that effort. Table III demonstrates how cluster analysis was utilized to classify school type using school profile variables (age of building, percent student home attendance, and Chapter One services) not utilized to create school SES. Results include:

- Cluster 1 type schools ($N=13$) represent medium-age schools that receive a moderate level of Chapter One services, with the lowest home school attendance rates;
- Cluster 2 type schools ($N=5$) represent newer schools that have the highest home attendance rates, and no Chapter One services; and
- Cluster 3 type schools ($N=11$) are the older schools with medium home school attendance levels, and the

Table II

**Principal Components Factor Analysis^{*}
Of Selected School Profile Data For District X**

Factor	Components Of Factor	Factor Loadings	Eigenvalue	% Internal Variance Explained
School SES (Two variables transformed)	% Poor (regular) Sq. Root Of Mobility Log % Minority Students	.93 .88 .82	2.63	87.6

^{*} One Factor Extraction - No Rotation; Kaiser Normalization; 26 cases.

Table III

**Cluster Analysis^{*} Of School Type
Using Age of Building, Chapter One Services,
And Percent Home School Attendance: District X**

Cluster	Weighted Cases	Age Of Building (Cluster Center)	Chpt. One Services (Cluster Center)	% Students Home Attendance (Cluster Center)
1	13	37.15	.31	82.78
2	5	17.00	.00	87.16
3	11	70.91	.64	84.04

^{*} Quick Cluster Method; Maximum Iterations = 10; Convergence Criteria = .02; 26 valid cases

heaviest Chapter One participation. Other possible descriptive school variables such as average daily attendance, school suspension, and school expulsion rates were not provided by the district.

Since previous research (discussed in section 2.90) has demonstrated that it is appropriate to account for as much of school characteristics as possible before attempting to account for family and neighborhood inputs, the next step in the analysis involved plugging the dependent variable assessing total achievement and the two independent variables (school SES and school type) into a multiple regression.

Table IV gives the results of that analysis. School SES alone accounted for an overwhelming 70% of the variance at the .0000 significance level. When school type was entered, the adjusted R^2 actually went down, and the Beta sharply dropped. This usually means there is a lot of sharing of the variance among the independent variables. Thus the clusters that make up school type did not improve the prediction of achievement after taking account of school SES.

The succeeding step in the analysis involved accounting for family and environmental influences as assessed by census data and other government information. Special attention was given to neighborhood crime, but it did not prove to be a significant predictor. The following census variables

Table IV

**Multiple Regression Analysis^a Of School Inputs Using
Dependent Variable Total Achievement:
District X**

Step No.	Independent Variable(s)	N	MR	Adj. R ²	Standard Error (sampling error)	Beta	T Score	p
1	School SES	21	.85	.70	.54	-.85	-6.98	.000
2	School SES School Type	21	.85	.69	.56	-.97 -.05	-12.30 -00.42	.000 .679

^a Probabilities of F for entry = .05, and for removal = .10

Table V

**Principal Components Factor Analysis^a
Of Selected Census Data For District X**

Factor	Components of Factor	Factor Loadings	Eigenvalue	% Internal Variance Explained
Family SES	% Blue Collar Workers	-.96	4.32	86.4
	% White Collar Workers	.97		
	% No High School Degree	-.92		
	% With Bachelor Or More Degree	.94		
	% Over 55k Income	.85		

^a One Factor Extraction - No Rotation; Kaiser Normalization; 26 cases

significantly entered into the regression model on an individual basis after accounting for school SES: Percent white collar workers, percent blue collar, percent of adults with a bachelor's degree or more, and percent of households earning over \$55,000 annually. Because it is customary to account for as much of the influence as possible with a minimum of variables, I once again utilized factor analysis to arrive at a combined family SES score. Table V shows the results of that analysis.

When family SES was entered into a model predicting total achievement, the independent variable increased the multiple correlation (MR) by .10 with an additional 19% of the variance explained (Table VI). Table VII includes similar results when the dependent variable is any of the other five achievement scores. Findings for the factor incorporating All Language Scores, for example, were just as impressive as those for total achievement. With a final MR in the .95 range and 90% of the variance explained, it appeared there was little else that could be explained by the available variables. Still, I proceeded to explore possible effects of neighborhood type.

Cluster analysis was utilized once again to create neighborhood types using a variety of census variables. Table VIII describes the end product of that effort. Results include:

- Cluster 3 type neighborhoods (N=7) with the highest

Table VI

**Multiple Regression Analysis* Of School
And Family Environmental Inputs Using
Dependent Variable Total Achievement:
District X**

Step No.	Independent Variable(s)	N	MR	Adj. R ²	Standard Error (sampling error)	Beta	T Score	p
1	School SES	21	.85	.70	.54	-.85	-6.98	.000
2	School SES Family Ses	21	.96	.90	.31	-.41 -.62	-4.21 6.30	.001 .000

* Probabilities of F for entry = .05, and for removal = .10

Table VII

**Multiple Regression Analysis* Of School
And Family Environmental Inputs:
Using Various Dependent Variables, And
Entering Family SES After School SES For District X**

Dependent Variable	Independent Variables	N	MR	Adj. R ²	Standard Error (sampling error)	Beta	T Score	p
All Language	School SES Family SES	21	.95	.90	.32	-.32 .69	-2.92 6.26	.009 .000
All Reading	School SES Family SES	21	.94	.87	.36	-.39 .61	-3.19 4.96	.005 .000
All Math	School SES Family SES	21	.93	.86	.37	-.31 .68	-2.42 5.31	.026 .000
4th Gr Achievement	School SES Family SES	21	.92	.83	.41	-.37 .61	-2.95 4.90	.007 .000
6th Gr Achievement	School SES Family SES	21	.89	.78	.47	-.28 .66	-1.92 4.47	.068 .000

* Probabilities of F for entry = .05, and for removal = .10

Table VIII

Cluster Analysis Of Neighborhood Type
Using Housing, Mobility & Owner Occupation
Indicators: District X

Cluster	Weighted Cases	% Housing After70 (Cluster Center)	% Housing Prior50 (Cluster Center)	% Same Residence (Cluster Center)	% Different Res (Cluster Centers)	% Owner Occupied Homes (Cluster Centers)
1	8	22.18	50.13	37.78	13.31	37.97
2	14	35.14	19.92	55.06	9.81	70.67
3	7	79.43	1.84	46.51	12.60	74.19

* Quick Cluster Method; Maximum Iterations = 10; Convergence Criteria = .02; 26 valid cases

Table IX

Multiple Regression Analysis Of School
And Family Environmental Inputs Using
Dependent Variable Total Achievement:
District X

Dependent Variable	Independent Variable	N	MR	Adj. R ²	Standard Error	Beta	T Score	p
Total Achievement	School SES					-.30	-2.50	.023
	Family SES					.66	6.01	.000
	Neighborhood Type	21	.96	.90	.32	.09	1.02	.321
All Language	School SES					-.26	-2.25	.038
	Family SES					.68	6.38	.000
	Neighborhood Type	21	.96	.90	.31	.11	1.38	.186

* Probabilities of F for entry = .05, and for removal = .10

percentage of older, owner occupied houses that have moderate mobility and moderate stability levels;

- Cluster 1 type neighborhoods (N=8) with the highest percentage of newer houses, yet the least highest percentage of owner occupied homes, the highest amount of out-of-state mobility transferring into the neighborhood, and the lowest percent of same-residence (last 5 years) families; and
- Cluster 2 type neighborhoods (N=14) with the highest amount of residential stability, with moderate levels of owner occupied houses that were mostly built between the years 1950-1970.

Although these preliminary classifications of neighborhoods looked promising, Table IX confirmed suspicions that so much of the variance was already accounted for by school SES and family SES that neighborhood type did not significantly add to the prediction of either the models incorporating Total Achievement or All Language Achievement factors scores. The results of the other 4 dependent scores were even less promising for neighborhood type. Neighborhood type was not a significant predictor of achievement for District X.

In the next part of the study, I proceeded to analyze the impact of environmental factors and neighborhood type on student achievement for the study's larger urban setting, District Y. Similar analytic methods and sequences were utilized for the remainder of the analyses. Important similarities and differences between the districts are highlighted.

4.30 Results For District Y:

Much like District X, a correlation matrix for District Y demonstrates that percent poor, student mobility, and percent minority are highly correlated with achievement scores, as well as with each other. The same school profile variables used in the analysis of District X proved to be the best predictors of school SES, as well as the best predictors of all student achievement scores for District Y. Percent poor had a higher simple correlation in the former, while percent minority and student mobility had higher simple correlations in the latter (refer to Appendix B for a summary of simple and zero-order correlations). A plot of the Total Achievement Factor Score with the independent variable percent poor for District Y also showed a similar negative linear relationship with a simple correlation of $-.84$.

Only one of the three variables - the log of percent minority students - required transformation in order to create a more linear relationship. Table X shows results from the factoring of school inputs. An important difference between the districts can be observed by looking at plots (see Appendix E). Halfway between the Y and X axis, there is a convex relationship between school SES and any of the dependent variable achievement scores for District Y. By way of contrast, what we often get in this type of research is a concave relationship, which was found in the plot of

Table X
Principal Components Factor Analysis*
Of Selected School Profile Data For District Y

Factor	Components Of Factor	Factor Loadings	Eigenvalue	% Variance Explained
School SES (One variable transformed)	% Poor (regular) % Mobility (regular) Log % Minority Students	.95 .91 .90	2.55	85.0

* One Factor Extraction - No Rotation; Kaiser Normalization; 32 cases

Table XI
Cluster Analysis* Of School Type
Using Chpt. One Services, Age of Building,
And Percent Home Attendance: District Y

Cluster	Weighted Cases	Age Of Building (Cluster Center)	Chpt One Services (Cluster Center)	% Students Home Attendance (Cluster Center)	% Daily Attend (Cluster Center)	Suspend/Expel (C. Center)
1	15	38.67	.73	77.17	95.21	4.26
2	10	15.40	.40	83.85	95.50	3.84
3	7	78.57	1.00	82.16	94.50	6.68

* Quick Cluster Method; Maximum Iterations = 10; Convergence Criteria = .02; 32 valid cases

achievement and school SES for District X. The atypical pattern for District Y appears to be especially noticeable in schools that do not have a K-2 program (discussed further in chapter 5).

Table XI shows the results of clustering school profile variables to discriminate school types for District Y:

- Cluster 1 type schools (N=15) are those that are medium-aged buildings which have the lowest percentage of home school attendance, a daily attendance rate that is close to the district's average, moderate Chapter One services participation, and a moderate suspension and expulsion rate;
- Cluster 2 type schools (N=10) are those that are newer buildings which have the highest percentage of home school attendance, a daily attendance rate that is close to the district's average, lower Chapter One participation, and lower rates of suspensions and expulsions; and
- Cluster 3 type schools (N=7) are those that are older buildings which have a medium home school attendance rate, an average daily attendance rate that is slightly under the district's average, higher Chapter One participation, and higher rates of suspensions and expulsions.

Table 12 reveals that 83% of the variance in predicting achievement is explained, with a multiple correlation (MR) of .92, when school SES is entered into the multiple regression model as the independent variable. With an R^2 this high, there probably isn't much more that can be explained in a data set of the kind used in this study. Entering school type into the equation (also Table XII), for example, did next to nothing to

Table XII

**Multiple Regression Analysis* Of School Inputs Using
Dependent Variable Total Achievement:
District Y**

Step No.	Independent Variable	N	MR	Adj. R ²	Standard Error	Beta	T Score	p
1	School SES	31	.92	.83	.41	-.92	-12.25	.000
2	School SES	31	.92	.83	.42	-.92	-12.05	.000
	School Type					-.03	.46	.652

* Probabilities of F for entry = .05, and for removal = .10

Table XIII

**Cluster Analysis* Of Neighborhood Type
Using % Minority, % Vacancy, % Blue Collar % Single Parent,
% Unemployment & Education-Housing Indicators: District Y**

Cluster	Weighted Cases	% Percent Minority (C. Center)	% Vacancy (Cluster Center)	% Blue Collar (C. Center)	% SParent (C. Center)	% No Job	% Edhouse
1	12	21.85	8.20	28.12	38.08	5.76	.78
2	16	7.60	3.44	19.16	18.16	2.91	-.71
3	4	59.99	6.73	29.33	52.75	12.35	.50

* Quick Cluster Method; Maximum Iterations = 10; Convergence Criteria = .02; 32 valid cases

improve the prediction, and a very sharp drop in the Beta for school type signaled that school SES and school type shared a great deal of the variance.

In addition, an extensive analysis of the impact of other independent variables using census data was conducted. I looked at single variables, as well as various combinations of factor scores. The best that this effort produced was a factor that included variables assessing percent of adults with no high school degree, and percent houses built before 1950. This factor score actually decreased the prediction by .01%, and was found not to be statistically significant ($p = .07$).

In order to carry out the original design of the study, I proceeded to investigate the question of whether or not neighborhood type made a significant difference. Table XIII lists the results of the clustering of census variables to form neighborhood type for District Y:

- Cluster 1 type neighborhoods (N=12) are those that have moderate amounts of ethnic minorities, the highest housing vacancy rates, the highest percentage of blue collar workers, moderate levels of single parent families, moderate job unemployment, older homes, and the highest percentage of people without a high school degree;
- Cluster 2 type neighborhoods (N=16) are those that have lower percentages of ethnic minorities, lower vacancy rates, a lower percentage of blue collar workers, a lower percentage of single parent families, low job unemployment, newer homes, and low percentages of people without a high school degree; and
- Cluster 3 type neighborhoods (N=4) are those that

have the highest concentration of ethnic minorities, moderate vacancy rates, the highest percent of both blue collar workers and single parent families, high job unemployment, moderate-aged homes, and moderate levels of people who don't have a high school degree.

It should be pointed out that the 70% home school attendance criteria caused several of Type 3 neighborhoods to be excluded from the analysis of District Y.

I was, however, able to obtain interesting results in that neighborhood type entered into a multiple regression analysis after accounting for school SES at a .03 significance level with an adjusted R^2 increase of .02 and a final MR of .93, when the dependent variable is total achievement (Table XIV).

It is important in multiple regression (and other quantitative) research, however, to look at more than just statistical significance. Vogt (1993) speaks of "effect size" measures that go beyond merely stating whether a relationship is significantly larger than zero. Effect size coefficients help to measure the strength of the relationship. Cohen (1988) identifies the following formula and guidelines to determine the effect size of a multiple regression partial correlation:

$$f^2 = \frac{r^2}{1 - r^2}$$

(part correlation squared) added by the variable, while controlling for others
1 - r^2 added by the variable, while controlling for others

Table XIV

**Multiple Regression Analysis^{*} Of School
And Family Environmental Inputs Using
Various Dependent Variables:
District Y**

Dependent Variable	Independent Variable(s)	N	MR	Adj. R ²	S. Error	Beta	R ² F Change	p	Effect Size (F ²)
All Achievement	School SES Neighborhood Type	31	.93	.85	.38	-.94 -.16	150.08 4.98	.000 .034	.03
6th Gr Achievement	School SES Neighborhood Type	31	.88	.76	.49	-.87 -.24	76.33 7.49	.000 .011	.06
All Language	School SES Neighborhood Type	31	.91	.81	.43	-.92 -.19	110.08 5.49	.000 .026	.04
All Reading	School SES Neighborhood Type	31	.93	.86	.38	-.94 -.14	163.14 3.93	.000 .057	.02

^{*} Probabilities of F for entry = .05, and for removal = .10

Table XV

**Principal Components Factor Analysis^{*}
Of Selected School Profile Data For
Combined Districts**

Factor	Components Of Factor	Factor Loadings	Eigenvalue	% Internal Variance Explained
School SES	% Poor (No Transformation)	.96	2.61	87.0
	% Mobility (No Transformation)	.94		
	% Minority (No Transformation)	.92		

^{*} One Factor Extraction; No Rotation; Kaiser Normalization; 32 cases.

SCALE

Small Effect Size = .02

Medium Effect Size = .15

Large Effect Size = .35

Although the effect size coefficient (i.e. the partial correlation for neighborhood type variables) is small, neighborhood type is nonetheless statistically significant and contributes to a better understanding of the influences students bring with them to school. Other achievement factor scores demonstrating significant entry of neighborhood type into the model, along with their respective effect size coefficients are also listed in Table XIV.

A potential problem with separate analyses of the districts in this study is that judgments based on the results of a small number of cases affect the reliability and generalizability of the findings. This problem is somewhat alleviated by the analysis of the combined data from both districts in the next section.

4.40 Combined Analysis from Both Districts

As one would expect, the same three school SES variables included in the factor "school SES" (see above) accounted for most of the variance in predicting academic achievement across the two districts. Appendix B shows simple and zero-order relationships between the dependent and various independent variables.

Since prior analysis determined that logging percent

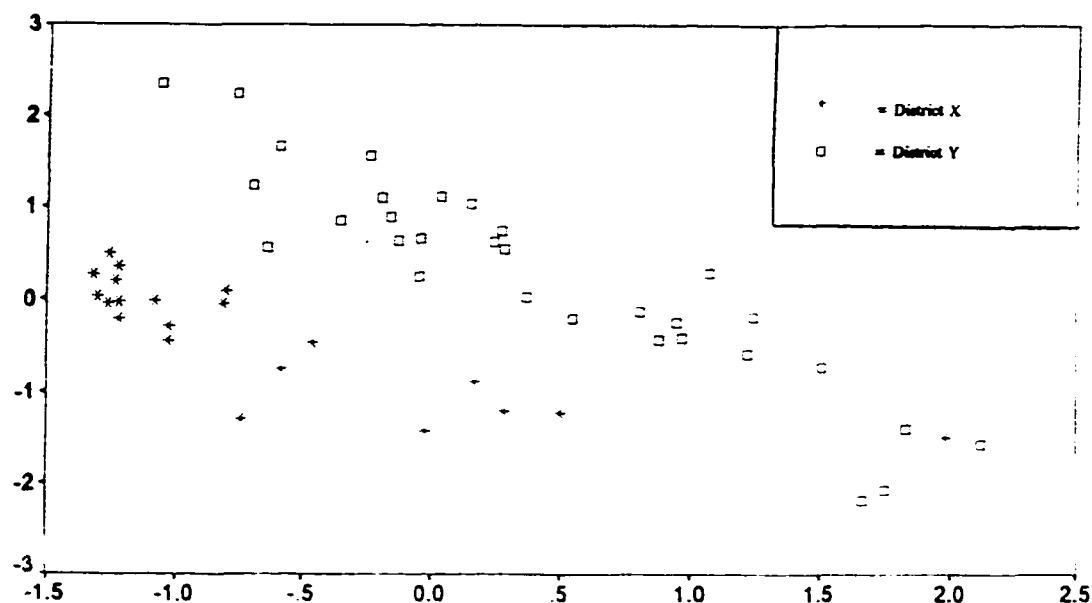
minority students in both districts improved the linear relationship, this transformation of the variable was included in the factoring of combined-district school SES (Table XV). Plots of the dependent and independent variables, however, showed that the untransformed factor score allowed for (a) a slight improvement in the linear relationship; (b) a more normal distribution; and (c) a slight improvement in the constancy of the variance (not shown here). Therefore, no transformation of the data was undertaken for the third and last series of analyses.

Although the assumptions involving a normal distribution and constant variance were not fully met, Vogt (1993) states that multiple regression is generally robust to violations of underlying assumptions, especially when violations are small, as was the case here. In addition, the initial number of valid cases is reduced from 61 to 52 for the Total Achievement Factor Score due to the fact that not all schools have both 4th and 6th grade levels.

One of the more surprising results of the study was the discovery of a very strong suppressor variable. Vogt (1993) defines a suppressor variable as one that obscures or conceals a relationship between other related variables. Suppressor variables are independent variables uncorrelated or relatively little correlated with the criterion, but are related to another predictor or set of predictors. Entering the

Figure 1

Plot of School Socioeconomic Status
With Total Achievement By School District

**Table XVI**

Multiple Regression Analysis* Of School Inputs
Using Dependent Variable Total Achievement:
Observing The Effects Of A Suppressor
Variable For Combined District Data

Step No.	Independent Variable	N	MR	Adj. R ²	Standard Error	Beta	T Score	p
1	School SES	52	.52	.25	.86	-.52	-4.27	.000
2	School SES	52	.88	.77	.48	-.97	-12.29	.000
	District	52				-.85	-10.74	.000

* Probabilities of F for entry = .05, and for removal = .10

suppressor variable into a regression equation clarifies underlying relationships, thus raising the correlation between one or more remaining independent variables and the dependent variable.

As shown in Figure 1, school SES is highly correlated with achievement in both districts, but achievement in District Y is generally higher than achievement in district X. Individual plots also made it clear that certain SES indicators (i.e.- income, race, mobility) had a more pronounced relationship with achievement in District Y as compared to District X. When differences in district-level were controlled through multiple regression analysis by adding in a district dummy variable, the effects of school SES became "unsuppressed", causing the multiple correlation (MR) to increase from .52 to .88, and the percent of variance explained to increase from 25% to 77% (Table XVI). School SES and the suppressor variable together explained more of the criterion variance than might have been expected from an examination of zero-order relationships.

The only other school variables jointly shared by the districts were Chapter One services, percent home school attendance, and the age of the school building. Table XVII shows the end product of a cluster analysis of these three variables. Results include:

- Cluster type 1 schools (N=15) are those that are

Table XVII

**Cluster Analysis* Of School Type Using Chpt. 1
Services, Age of Building & Home School
Attendance: Combined Districts**

Cluster	Weighted Cases	Age Of Building (Cluster Center)	Chpt One Services (Cluster Center)	% Students Home Attendance (Cluster Center)
1	15.0	15.9333	.2667	84.9533
2	27.0	37.1852	.5185	80.0333
3	19.0	73.1053	.7895	82.7526

* Quick Cluster Method; Maximum Iterations = 10; Convergence Criteria = .02; 61 valid cases

Table XVIII

**Multiple Regression Analysis* Of School Inputs
Using Dependent Variable Total Achievement
For Combined Districts**

Step No.	Independent Variable(s)	N	MR	Adj. R ²	Standard Error (sampling error)	Beta	T Score	p
1	School SES	52	.89	.77	.48	-.94	-11.06	.000
	District					-.82	- 9.55	.000
	School Type					-.07	- .88	.382

* Probabilities of F for entry = .05, and for removal = .10

newer buildings with the highest level of home school attendance, and the lowest and/or no levels of Chapter One services;

- Cluster type 2 schools (N=27) are medium-aged buildings with the lowest levels of home school attendance, and moderate levels of Chapter One services; and
- Cluster type 3 schools (N=19) are those that are older buildings that have moderate levels of home school attendance, and the highest level of Chapter One services.

A multiple regression analysis (Table XVIII) shows, however, that school type does not significantly enter into the model.

At this point, I proceeded to assess traditional environmental characteristics identified as predictors of achievement. Table XIX shows how percent of single parent homes, and percent of poverty children 18 years of age and under, improve the prediction. The single parent variable increased the MR from .88 to .89, with an adjusted R^2 of .79 (.014 R^2 increase) at the .0005 significance level. By then adding poverty kids to the equation, the MR is increased .02 units, with an additional .03% of the variance explained at the .003 significance level.

Several interesting factors respectively involving occupation and education, housing stability, and inner-city poverty also were derived (Table XX). Their entry into the regression model, however, did not prove to be statistically significant. With an MR of .91 and 82% of the variance

Table XIX

**Multiple Regression Analysis^{*} Of School Inputs
And Neighborhood Environment Characteristics Using Dependent
Variable Total Achievement For Combined Districts**

Step No.	Independent Variable	N	MR	Adj. R ²	Standard Error	Beta	T Score	p
1	School SES					-.71	- 4.72	.000
	District					-.79	- 9.56	.000
	% Single Parent	52	.89	.79	.46	-.27	- 2.05	.050
2	School SES					-.83	- 5.82	.000
	District					-.84	-10.85	.000
	% Single Parent					-.59	- 3.73	.001
	% Poverty Children	52	.91	.82	.42	.45	3.16	.003

^{*} Probabilities of F for entry = .05, and for removal = .10

Table XX

**Principal Components Factor Analysis^{*}
Of Selected Census Variables For Combined Districts**

Factor	Components Of Factor	Factor Loadings	Eigenvalue	% Internal Variance
Occeduc	% White Collar	.96	4.25	85.0
	% Blue Collar	-.95		
	% Over \$5k Income	.85		
	% No H.S. Degree	-.90		
	% Bachelor's Degree or More	.95		
Stability 1	% Vacancy	-.77	2.77	69.3
	% Owner Occupied Homes	.87		
	% Mobility Far Away	-.76		
	% Same Residence	.92		
Stability 2	% Vacancy	-.83	2.31	77.0
	% Owner Occupied Homes	.90		
	% Same Residence	.90		
Inner City Blues 1	% Unemployed	.95	2.35	78.4
	% Minority	.89		
	% Under 15K Income	.82		
Inner City Blues 2	% Unemployed	.95	1.82	90.9
	% Minority	.95		
Community (Later Clustered As Neighborhood Type	% Homes Built After 70	-.88	2.25	74.9
	% Homes Built Prior 50	.81		
	Population Density Sq. Mile	.91		

^{*} One Factor Extraction; No Rotation; Kaiser Normalization

explained by school SES, district, percent single parent, and percent poverty kids, it became apparent that little or no additional variance was likely to be explained by the available variables.

As previously mentioned, the design of the study called for the investigation of possible impacts neighborhood type might have on achievement. The first step in accomplishing this was to identify those variables that may not have an impact singularly, but might produce the desired effect when clustered into groups. After an extensive and exhaustive analysis of the factor variables listed in Table XX, as well as the census data in general, it was found that percent of houses built before 1950, percent of houses built after 1970, and density of population (a "Community" Factor Score) were the only variables not already accounted for that could meaningfully discriminate neighborhoods.

Table XXI shows the end product of the clustering of selected combined districts census variables. Results include:

- Cluster type 1 neighborhoods (N=16) have the least amount of population density, with a higher concentration of newer houses;
- Cluster type 2 neighborhoods (N=25) have medium levels of population density, and a predominance of houses built in the intermediate (1950-1970) years; and
- Cluster type 3 neighborhoods (N=17) have the highest levels of population density, and the highest concentration of older houses.

Table XXI

**Cluster Analysis* Of Neighborhood Type Using
Housing & Density Indicators For Combined Districts**

Cluster	Weighted Cases	% Of Houses Built After 70 (Cluster Center)	Density (Cluster Center)	% Of Houses Built Before 50 (Cluster Center)
1	16	56.31	939.13	11.54
2	25	35.87	3553.04	24.59
3	17	18.31	6489.82	48.60

* Quick Cluster Method; Maximum Iterations = 10; Convergence Criteria = .02; 58 Cases

Table XXII

**Multiple Regression Analysis* Of School,
Family, And Neighborhood Inputs Using Dependent Variable
Total Achievement For Combined Districts**

Step No.	Independent Variables	N	MR	Adj. R ²	Standard Error	Beta	T Score	p
1	School SES					-.84	- 6.19	.000
	District					-.87	-11.66	.000
	% Single Parent					-.69	- 4.43	.000
	% Poverty Kids					.49	3.55	.001
	Neighborhood Type	52	.92	.84	.40	.16	2.44	.020

* Probabilities of F for entry = .05, and for removal = .10

Table XXII demonstrates that neighborhood type does have a statistically significant effect on the total achievement of the combined districts independent of school SES variables already accounted for. Neighborhood type added a .02 change of R^2 at a .02 significance level, with a final MR of .92 and 84% of the variance explained. The effect size is small (.02), but the results are still noteworthy.

Other achievement factor scores and their respective multiple regression results are listed in Table XXIII. Of the six dependent variables, the All Language Achievement Factor Score is explained the most by the current model, with a Final MR of .94, 86% of the variance explained, and an effect size of .02. Although the correlation between 6th grade achievement and the independent variables explained the least amount of variance (76%), it was also the one model where the largest gain for neighborhood effects were accounted for: A .034 change in R^2 at the .01 significance level, with a small effect size of .04.

The strength of the association between total achievement and school SES as a lone independent variable is already highlighted in Figure 1. Figures 2a shows the relationship between the Total Achievement Factor Score and school SES when neighborhood type is defined by the five historic and traditional neighborhood classifications listed in section

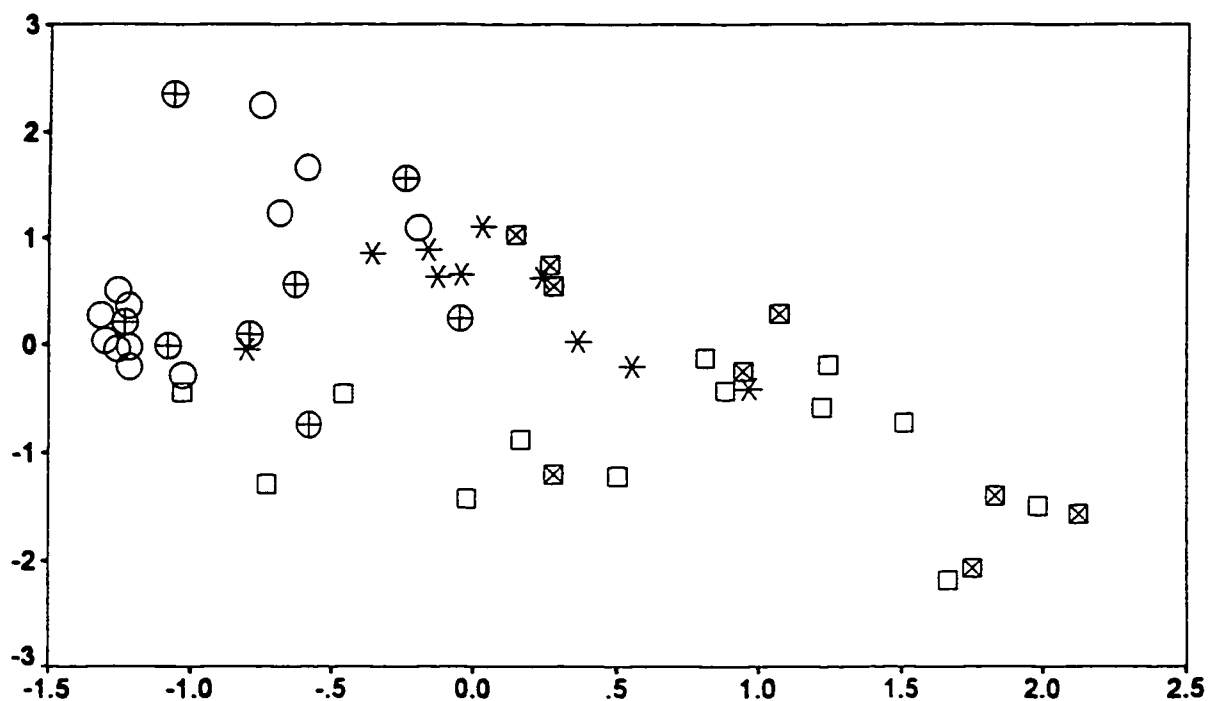
Table XXIII
Final Multiple Regression Analysis* Of School
And Family Environmental Inputs
Using Various Dependent Variables
For Combined Districts

Dependent Variable	Independent Variable(s)	N	MR	Adj. R ²	S. Error	Beta	R ² F Change	p	Effect Size (F)
All Achievement	School SES					-.84		.000	
	District					-.87	87.41	.000	
	% Single Parent					-.69	4.20	.000	
	% Poverty Kids					.49	10.00	.001	
	Neighborhood Type	52	.92	.84	.40	.16	5.96	.019	.02
All Language	School SES					-.72		.000	
	District					-.99	100.57	.000	
	% Single Parent					-.70	5.53	.000	
	% Poverty Kids					.48	11.76	.000	
	Neighborhood Type	52	.93	.86	.37	-.15	6.17	.017	.02
All Math	School SES					-.77		.000	
	District					-.79	63.82	.000	
	% Single Parent					-.67	4.18	.001	
	% Poverty Kids					.40	4.68	.017	
	Neighborhood Type	52	.89	.77	.48	.17	5.09	.029	.02
All Reading	School SES					-.98		.000	
	District					-.76	83.41	.000	
	% Single Parent					-.64	2.07	.000	
	% Poverty Kids					.54	12.15	.000	
	Neighborhood Type	52	.92	.83	.42	.14	4.60	.037	.02
6th Gr Achievement	School SES					-.73		.000	
	District					-.77	53.07	.000	
	% Single Parent					-.85	4.83	.000	
	% Poverty Kids					.53	6.83	.004	
	Neighborhood Type	52	.88	.76	.49	-.21	7.92	.010	.04

* Probabilities of P for entry = .05, and for removal = .10

Figure 2A

**Plot of Total Achievement And School SES ^{*1}
By Traditional Historic Neighborhood Classification ^{*2}
For Combined Districts**



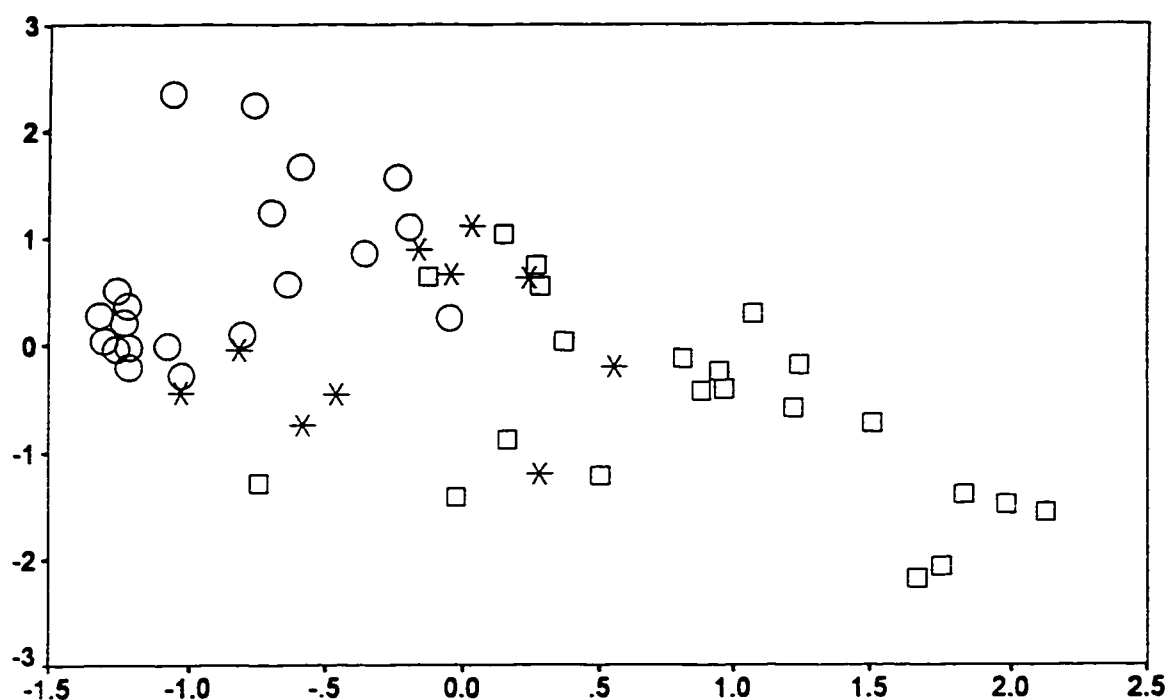
- = Cluster 1 - Upper-Class Neighborhoods (N=12)
- ⊕ = Cluster 2 - Middle-Class Neighborhoods (N=8)
- * = Cluster 3 - Transition Neighborhoods (N=10)
- ⊗ = Cluster 4 - Lower-Class Neighborhoods (N=9)
- = Cluster 5 - Concentrated Poverty Neighborhoods (N=13)

Note * 1: School SES is comprised of percent poor students, percent minority students, and student mobility.

Note * 2: Traditional neighborhoods are defined in this case as historical classifications as established by local histories and government officials.

Figure 2B

**Plot of Total Achievement And School SES *¹
By Socioeconomic Neighborhood Classification *³ As Determined
By SPSS Quick Cluster Method For Combined Districts**



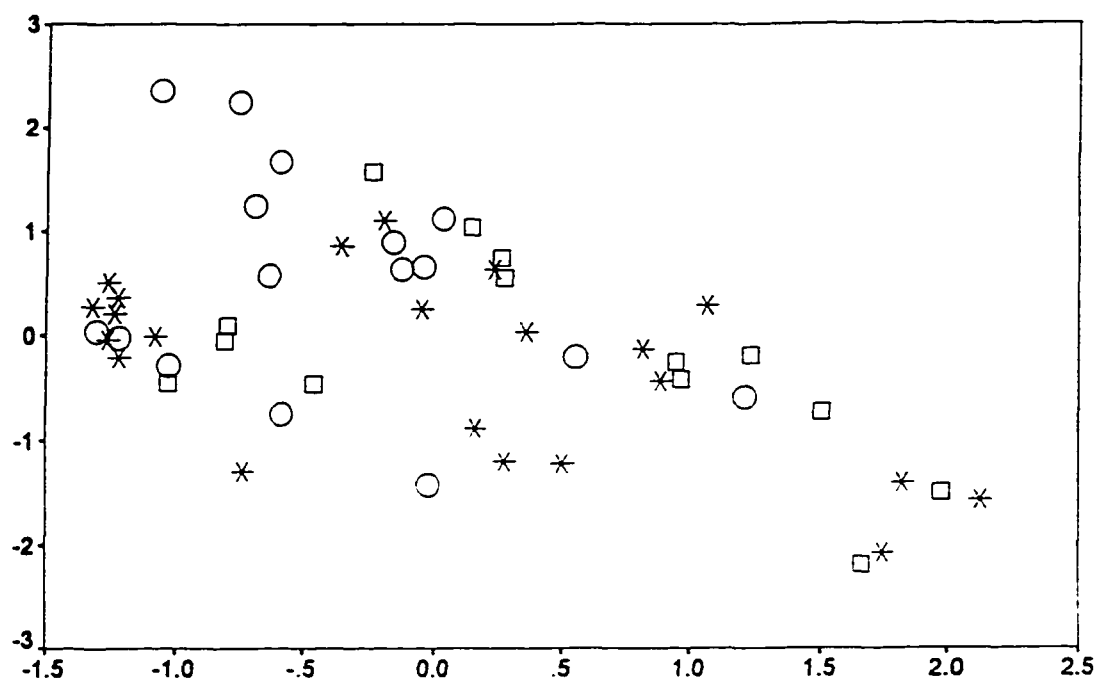
- = Cluster 1 - Middle & Upper Class Neighborhoods (N=20)
 * = Cluster 2 - Lower-Middle Class & Transition Neighborhoods (N=10)
 □ = Cluster 3 - Lower Class & Concentrated Poverty Neighborhoods (N=22)

Note * 1: School SES is comprised of percent poor students, percent minority students, and student mobility.

Note * 3: Socioeconomic neighborhoods are 3-cluster scores using variables percent single parent, % poverty kids, student mobility, percent blue collar, percent white collar, percent adults with no high school degree, and percent adults with bachelor's degree or more.

Figure 2C

**Plot of Total Achievement And School SES *¹
By Alternative Neighborhood Classification *⁴ As Determined
By SPSS Quick Cluster Method For Combined Districts**



- = Cluster 1 Type Neighborhoods which have the least amount of population density, with a higher concentration of newer homes (N=16)
- * = Cluster 2 Type Neighborhoods which have medium levels of population density, and a predominance of houses built in the intermediate (1950-1970) years (N=22)
- = Cluster 3 Type Neighborhoods which have the least amount of population density, with a higher concentration of newer homes (N=14)

Note * 1: School SES is comprised of percent poor students, percent minority students, and student mobility.

Note * 4: Alternative neighborhood classification is a 3-cluster factor score using census variables - houses built after 1970, houses built before 1950, and population density.

3.40 of this study. In addition, Figure 2b shows the relationship when the five historic neighborhoods are recoded into 3 types.

The analysis was able to account for the following amount of variance explained in zero-order relationships (after accounting for district) between the Total Achievement Factor Score and the various types of neighborhood classifications:

- Model One, a three-solution typology arrived at by SPSS Quick Cluster Method utilizing density and housing variables, explained 14% of the variance at the .05 significance level;
- Model Two, a 5-solution historic neighborhood classification based on traditional SES indicators, explained 50% of the variance at the .0000 significant level;
- Model Three, a recoding of model two into 3 categories, explained 48% of the variance at the .0000 significance level; and
- Model Four, an SPSS Quick Clustering of traditional SES indicators (Appendix C) into 3 categories, explained 56% of the variance at the .0000 significance level.

Of these various methods of viewing neighborhood type, however, only model one proved useful in helping to significantly predict achievement above and beyond traditional indicators. Because historic neighborhoods are based on traditional socioeconomic indicators, this method of classifying neighborhoods proved to be meaningful only in a specific sense. In short, neighborhoods can be viewed from both a wide or a narrow context.

The plots in Figure 2a, 2b, and 2c are nonetheless useful for observing certain patterns across the two districts. Figure 2b clearly demonstrates that suburban neighborhood schools (N=20) had the highest level of student achievement, followed by schools from transition neighborhoods (N=10), then lastly schools from inner-city communities (N=22). The same pattern holds true when plotting many of the census variables with achievement. Figure 2c demonstrates that the majority of neighborhoods which have the higher concentration of population density and older homes (my alternate classification of neighborhoods) have the lowest student achievement.

A portrayal of final multiple regression relationships uncovered in the analyses of this study was obtained by plotting the actual scores against the predicted scores. Figure 3 demonstrates the relationship separately for the two districts when the dependent variable is total achievement. Figure 4 does the same for the combined districts. Clearly, this visual proof confirms what the statistical coefficients have been indicating along about the strength of the relationships.

Figure 3

Actual Scores Plotted Against Predicted Scores Using
Dependent Variable Total Achievement And Various Independent
Variables: District X - School SES & Family SES, And
District Y - School SES, School SES & Neighborhood Type

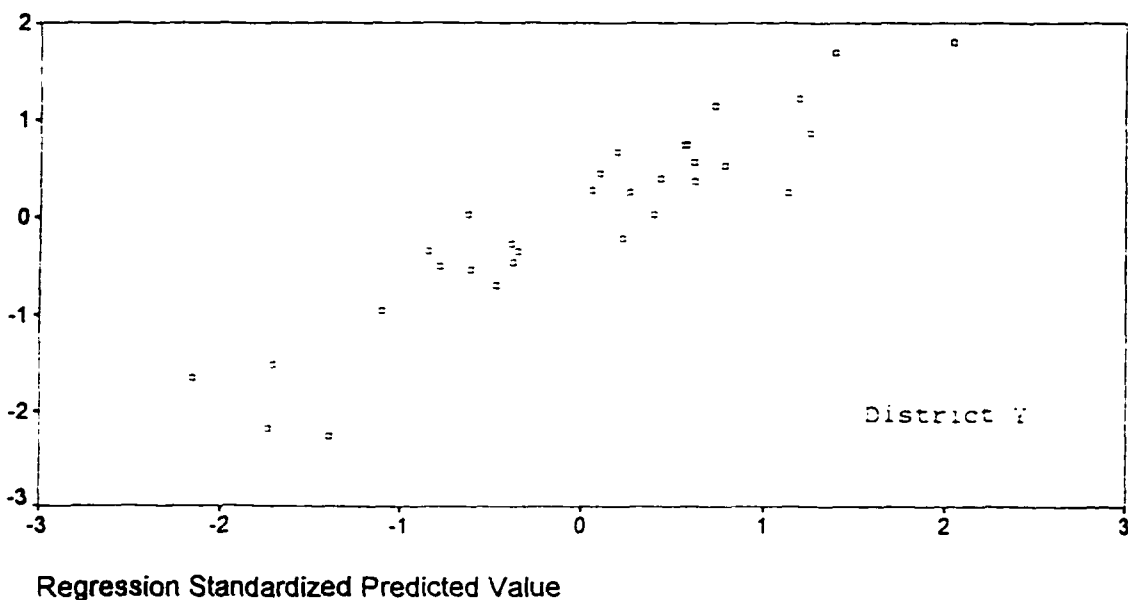
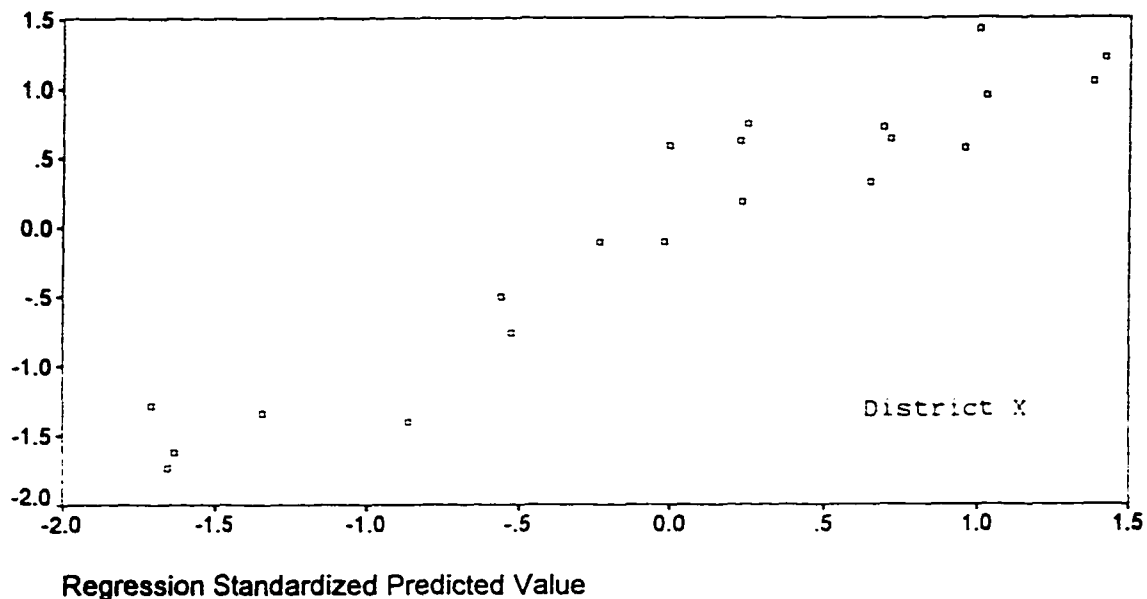
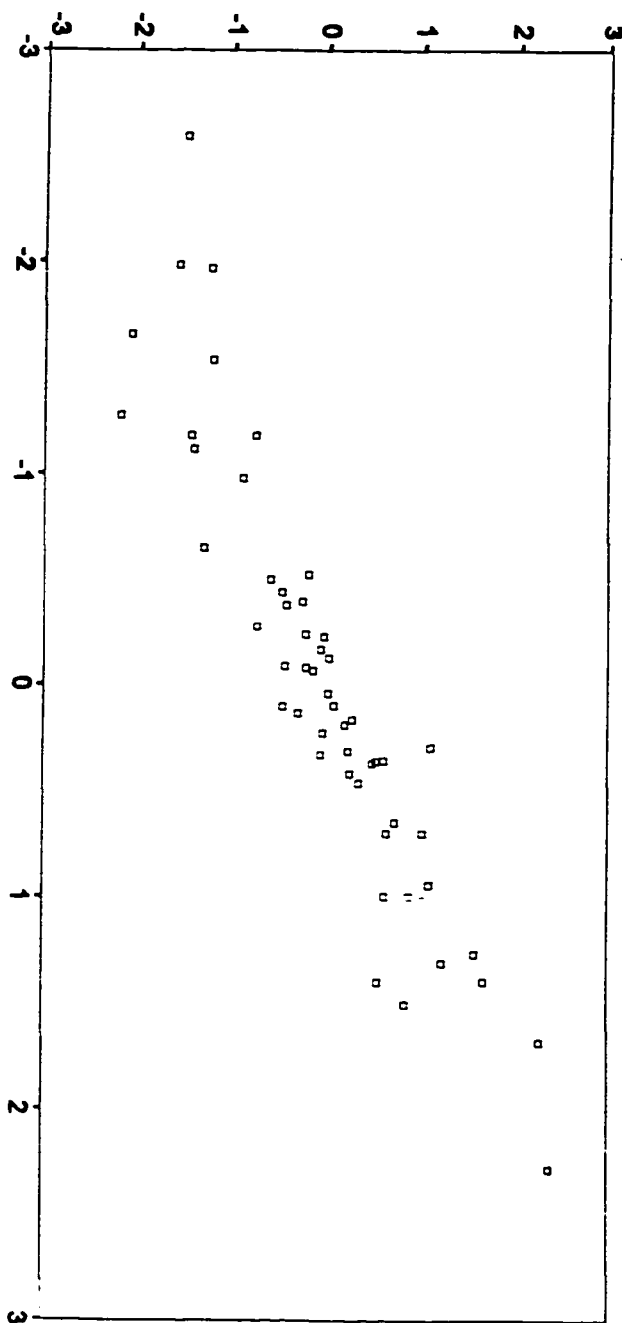


Figure 4

Actual Scores Plotted Against
Predicted Scores Using Dependent Variable Total Achievement,
And Independent Variables: School SES, District,
& Single Parent, & Poverty Kids & Neighborhood Type
For Combined Districts



Chapter V

Discussion And Conclusions

5.1 Restatement of Purpose & Null Hypotheses

The purpose of this study was to investigate the impact of environmental characteristics upon the academic achievement of students. The following Null Hypotheses were tested:

H₁ There exists no identifiable set of environmental variables which accurately discriminate one neighborhood type from any another for purposes of meaningful educational research.

H₂ There exists no significant relationship between school type and the achievement level of students in that school, once traditional academic and socioeconomic indices have been accounted for.

H₃ There is no significant relationship between the characteristics of a neighborhood and the achievement level of the school that serves that neighborhood, once traditional environmental indices have been accounted for.

H₄ There is no difference in the results of studies which investigate the relationship between neighborhood type and school achievement for smaller-sized cities and studies of larger urban areas.

The following two broad-based, yet closely related

research questions were also investigated:

1. What findings from this analysis help to dispute, confirm, or improve upon those gained from previous research conducted in this area?

2. Will the analysis be able to identify schools that may qualify as Unusually Effective Schools - schools that succeed despite a profile that says they should not.

5.2 Overall Summary of Findings

The study revealed important and useful information even though it was limited by a data set including some schools that do not have 100% home school attendance, and the settings in which the two districts reside are not large cities of the kind usually studied in previous research.

The most obvious finding of the study is that school socioeconomic status (school SES) as defined by percent of students on free and reduced lunches, percentage of minority students per school, and student mobility accounted for an overwhelming percent of the variance when predicting student achievement. School SES alone accounted for 70% of the variance for District X (N=21), 83% of the variance for District Y (N=31), and .77% of the variance for the combined districts (N=52) when predicting achievement as represented by a Total Achievement Factor Score.

Further amounts of the variance were explained when I accounted for additional family SES influences. A factor score

made up of the occupation of parents, percent of adults with a high school degree, and household income added an additional 20% of the variance explained for District X. The inclusion of percent single-parent homes, and percent of children living in poverty to a regression model added an additional 5% of the variance explained for the combined analysis. No further set of "family SES" indicators significantly added to the prediction of achievement for District Y.

A plot of achievement and school SES clearly demonstrates that the higher achieving schools are located in suburban areas, while the lower achieving schools are found in the inner city (refer to figure 2, section 4.40). Differences between the two districts included the following:

- A higher (+ \$1,073.00) median income level in District X (the smaller urban center) than in District Y;
- Tier 2 funding designation for District X and Tier 1 designation for District Y, which accounted for an additional \$120.00 per child, per school year for District Y.
- A noticeably greater association between achievement and percent minority students in District Y than in District X;
- Higher levels of upper-end school achievement, as well as a wider gap in high-low school achievement in District Y than in District X;
- Elevated middle-range scores (convex relationship) for District Y, as opposed to depressed middle-ranged scores (concave relationship) for District X (Appendix E); and
- A more significant independent effect of

neighborhoods on student achievement in District Y than in District X.

While student achievement in both districts correlated highly with a total school SES factor score, achievement in District X was more directly impacted by poverty and income. The effect of student mobility, on the other hand, was more pronounced in District Y, the larger and more urban of the two districts (refer to appendix B for a listing of zero-order regression coefficients).

Although 7 elementary schools from District X, and 24 schools from District Y were excluded from the analysis, it is possible that differences between the districts would not diminish if those missing schools were to be included in the analysis. The fact that a greater percentage of low SES inner-city schools were excluded from the District Y portion of the analysis might very well have kept differences between districts from being even more pronounced.

A convex relationship between a plot of any of the achievement scores and school SES exists for District Y. This greatly differs from the typical pattern of a concave relationship, which was demonstrated by a similar plot for District X. For some unexplained reason, mid-range scores on SES are elevated rather than depressed, especially at schools that do not have a K-2 program in District Y.

One of the goals of this research was to identify schools

that may be considered to be unusually effective (i.e. - they have higher achievement than usually found at schools with students similar in SES). By comparing predicted scores and actual scores I can identify a few schools that perform better than their profile says they should. School #13 from District Y, for example, is very high in percent of poor students (80.4%), moderately high in percent of minority students (48%), and moderately high student mobility (24.00 index score), yet the total achievement of students in this school is noticeably above its predicted score for like schools, and is 1.5 standard deviations (SD) above the national norm. Similar results can also be found for several other District Y schools such as school #5 (+1.25 SD), school #26 (+1.00 SD), and school #31 (+.85 SD).

Although no low SES profile schools in District X scored above the national norm, special attention should be given to one "outlier" in particular. School # 39 is very high in poor students (90%), high in percent minority students (57%), and has the highest student mobility index score (40.00) of all the schools in the combined data set. Although 4th and 6th grade reading scores are only at the 40th percentile, and the Total Achievement Factor Score is 1.5 standard deviations below the national norm, we also find that students of school #39 experienced a measure of success. The fact that students from this school scored almost 3 standard deviations above the

scores of like-profile schools is definitely cause for celebration, and suggests that there should be further investigation of the reasons for that success.

The most surprising result of the study was the discovery of a very strong suppressor variable for the combined data set. When looking at an initial regression of total achievement with school SES, I was only able to account for 25% of the variance with an MR of .52. The inclusion of a dummy variable, which takes into account the difference in districts, "unsuppressed" the data and allowed the MR to increase to .88 with 77% of the variance explained (a 52% increase).

With a multiple correlation (MR) of .96 and an R^2 of .90, an MR of .93 and an R^2 of .85, and an MR of .91 and an R^2 of .82 explained by various SES indicators for District X, District Y, and the combined districts respectively, I conclude that little additional variance in student achievement could be predicted with the available data set.

Although this proved mostly true, the effects of neighborhood type nonetheless proved to be significant for the larger urban district, as well as for the combined data set. For District Y, neighborhood type - as defined by age of housing and population density - added an additional 2% to the variance explained, with a small (.03) effect size when

predicting total achievement (final MR of .93). For the combined districts, neighborhood type also added an additional 2% of the variance explained, with a small (.02) effect size (final MR of .92).

5.3 Addressing The Null Hypotheses

Null Hypothesis #1 is rejected because the study showed that neighborhoods can be classified in meaningful ways that help educators and policy makers better understand environmental impacts on students' lives.

First, the use of cluster analysis proved to be a very useful research tool when I utilized traditional SES measures (i.e.- single parent, poverty kids, occupation, education, mobility) to discriminate neighborhood type. An alternate SES clustering of neighborhoods, for example, shows that whether or not a child resides in one of three neighborhoods (refer to Appendix C) accounted for 56% of the variance explained at the .0000 significance level, when predicting total achievement and accounting for differences in district.

Second, even after accounting for traditional SES measures in typical multiple regression fashion, neighborhood clustering of non-traditional indices (i.e.- density, age of housing) allowed a 2% increase of the variance explained at the .02 significance level.

It is important to note that statistical methods for clustering neighborhoods produced slightly better zero-order

relationships with achievement than approaches based on common knowledge and local histories. Whereas traditional historic neighborhoods did explained an impressive 50% of the variance ($p=.0000$) when predicting total achievement, the alternate method of classifying neighborhoods (see above) accounted for an additional 6% of the variance explained. The five historic neighborhood types arrived at during the preparation phase of the study (section 3.40) were reduced to three meaningful and significant groups by the SPSS Quick Cluster method.

Null Hypothesis #2 is accepted because the study did not find school type to be a statistically significant predictor of achievement. The reader is reminded, however, that the predictor set for school was somewhat limited. Other potential school inputs such as attendance rates, suspension rates, curriculum factors, and teacher turnover rate were unobtainable at the time of the study. Even if those additional variables had been available, however, so much of the variance was explained by SES in the available data set that there was very little left to be predicted.

Null Hypothesis #3 is rejected. Neighborhood type had a small, though statistically significant effect on both total and subtest achievement after accounting for traditional SES measures (refer to Table 23 and above discussion). Although the findings were not significant for the smaller urban district, both the larger and the combined districts

demonstrated a clear association achievement and neighborhood type. The type of neighborhood a child comes from is an important piece of the larger picture when attempting to understand the types of advantages and disadvantages students bring with them to school.

Null Hypothesis #4 is cautiously rejected. It appears the neighborhood-effects results of larger-city studies are somewhat different from the findings of studies which might investigate the effects for smaller cities. The only studies that were similar in methodology and end goals of this research were conducted by Meyer and Levine (1977b) and Garner (1989). Other "neighborhood studies" appear to concern themselves mostly with the effects of "concentrated poverty" and "a bundle of socioeconomic characteristics", which this study defined as school SES and family SES.

Garner found a significant 1% neighborhood effects increase, but her study centered on the educational attainment of 2,500 urban dropouts over a two-year period, which is very different from investigating end-of-year academic achievement. Meyer and Levine uncovered several ways to classify neighborhoods from three large urban school districts within a Midwest "high-status metropolitan community" (refer to section 3.2 for this and succeeding typologies). The results showed significant R^2 changes when predicting achievement

after accounting for traditional SES measures for four of their classifications: Five Factor Dyad - 1.97 ($p=.05$), BC TRY Cluster Tertiles - 2.21 ($p=.05$), BC TRY Cluster Profile Dyads - 3.17 ($p=.01$), and Visual Two Factor Race Profile - 7.32 ($p=.01$).

My study showed a significant R^2 change of F at 4.98 ($p=.03$) for the study's "main big-city community" schools ($N=31$), but found no significant neighborhoods effect for the study's smaller "medium-city community" schools ($N=21$). Although the findings of the larger metropolitan districts in the Meyer and Levine study show similar results to our moderate-sized urban district, the findings of neither matched the findings of my study's smaller-sized-city schools.

5.4 Relation To Previous Research

The lack of actual neighborhood type studies - as it is narrowly defined in this research - makes it difficult to draw exact comparisons across the literature. There are, however, a number of related and semi-related studies which look at some of the secondary issues addressed in this research. This section will discuss findings which help to dispute, confirm, or improve upon those gained from previous environmental effects research.

Although the main effects of poverty per se were not specified as part of the original design of this study, this

research appears to lend support to the findings of others (Datcher, 1982; Brooks-Gunn et al., 1993; Garner, 1989; Kukuk et al., 1978; Levine, 1979; Levine et al., 1973; Levine et al., 1974 Meyer & Levine, 1977a, 1977b; Ornstein & Levine, 1989) which state that:

- The presence of neighborhood affluence, higher percentages of professional and managerial residents, evidences of successful entrepreneurial endeavors, and meaningful social institutions have a positive residual effect on the academic and social development of some types of children;
- Concentrated poverty explains a statistically significant part of the association between school failure and environment that traditional socioeconomic variables alone do not seem to pick up; and
- Concentrated poverty transmits much of the effects of race, single parent households, mobility, and other single SES variables.

This study tends to support authors who have disputed some of the findings of earlier studies which gave too much credit to the influence of race (Carter & Levine, 1977; Easton & Bennett, 1989; Murton, 1966; Wright & Dhanota; 1981) and single-parenthood (Dawson, 1981; Featherstone et al., 1992; Gelbrich & Hare, 1989; McCartin & Meyer, 1988; Nock, 1988; Shreeve et al., 1985; Smidchen & Thompson, 1978; Southworth, 1984; Touliatos et al., 1978; Zimilies & Lee, 1991) as single determinants of achievement.

We now know that a wider set of urban stressors work in concert to promote academic and social disadvantage. However,

this reality does not present a license to ignore the role of race, ethnicity, culture, and single parenthood in the academic and social development of disadvantaged children. The findings of this study do not directly examine the possible effects of racism or of cultural patterns and traditions that can impact learning, nor the possible negative effects arising from the absence of a parent in the home.

Much like other previous research, this study supports a position which states that it would be a mistake to view inner-city academic and social problems separate from the broader context of family disorganization brought on by social and community disintegration. Although this does not excuse disadvantaged and minority parents and children from their responsibilities, it does, however, shed light on patterns involving situations in which students are often blamed for things that are beyond their control.

This research also helps to improve upon previous research which states that population density and overcrowding (Cohen, 1975; Meyer & Levine, 1978) and housing correlates (Kukuk et al., 1978; Maynard, 1977; Meyer & Levine 1978; Passow, 1979) are often overlooked in studies which attempt to assess environmental impacts on achievement. The fact that these variables provided the means to successfully discriminate neighborhoods for this study, and then to significantly account for an additional 2% of the variance

explained, is testimony to their importance. This research offers an improved comprehensive definition of what a neighborhood really is.

This research also helps to improve upon the limited literature which examines the effects of suppressor variables. A 52% increase of the variance explained in predicting total achievement is gained by the introduction of the "unsuppressor" variable "district" into one of the multiple regression equations of this study. This is a very important finding. Researchers who have been examining and consuming research based on multiple regression for many years have seldom encountered studies incorporating or reporting clear and valid suppression effects of this magnitude.

Lastly, we must admit that everyday realities of life dictate that we come to view neighborhoods as broader than merely consisting of density and housing inputs. Many of the variables that formed school SES and family SES factors (i.e.- percent poverty kids, percent single parent, mobility, etc.) in this study are in fact intertwined school, family, and neighborhood influencers. From this point of view, neighborhoods exert more than a mere added effect on the academic and social development of children. In that sense, we can say that the results of this study align with the overall findings of most of the available "neighborhood" effects studies.

5.5 Implications For Educators And Policy Makers

These analyses raise several questions for both educators and government policy makers. Although neighborhood factors proved significant, family-level factors also proved to be highly important. Efforts to remediate problems at both levels should be undertaken. On one hand, helping to positively impact such variables as household income, housing, or the dysfunctional aspects of mobility might help children from disadvantaged homes to have more time and energy to concentrate on school work.

I am not convinced that the collaboration of schools, institutions, and the home to help stem the tide of academic mediocrity has been fully explored. Providing more training and education for parents so that they become better mentors, as well as involving community institutions more in the total educational development of disadvantaged students are likely to have positive direct and indirect results on levels of student achievement.

The findings of this study support the theoretical Risk Model of assessing environmental effects on achievement: Neighborhoods can be viewed as imparting considerable advantages and disadvantages to children growing up in them (Kuppersmidt, 1995). The results are also compatible with the Protective Model which states that certain low-risk neighborhoods have the potential to operate as a protective

factor for children of high-risk families. Attention accordingly should also be given to the possibilities for the relocation of some inner-city families to better neighborhoods.

While some may consider this move to be an unacceptable form of social engineering, it may be a bigger risk to continue to allow inner-city areas and their children to fall into greater deterioration and disarray. This scenario casts an ominous shadow over both urban and suburban evolution. I propose initiating moderate levels of relocation, employing a similar "threshold" approach that is utilized by a few educational researchers who contemplate a workable advantaged/disadvantaged mixture for schools (Levine et al., 1979; Levine & Havighurst, 1992; Levine & Levine, 1996; Meyer & Levine, 1977a; Thompson & Smidchens, 1979b).

Schools, on the other hand, must take a more active role in providing increased learning opportunities which push disadvantaged students to develop metacognitive skills (Levine & Levine, 1996), as opposed to memorization and learning by rote. This may involve having to rethink the way in which inner-city teacher-student ratios are formulated. We may also have to rethink the way we structure teacher assignment policies and teacher preparation programs. Clearly, the poorer disadvantaged students need the better teachers. Highly qualified educators should be financially rewarded if they

teach at tougher disadvantaged schools.

Becoming a master of pedagogy and content area alone will not suffice when attempting to educate a classroom of children who bring myriad home and neighborhood problems with them to school. Urban school educators today must become adept at motivating unmotivated students. Because this task is not a simple one, central administration should also consider the benefits of merit pay as a tool to recruit highly qualified educators to work in schools located in tough and poor inner-city neighborhoods. In addition, recognition of the findings from the Unusually Effective Schools research (Levine & Lezotte, 1990) might help provide a successful template for school administrators to pattern inner-city schools after (summarized in Appendix D).

5.6 Implications For Future Research

This study confirms some things we already know about the impact of environmental and neighborhood factors on the academic achievement of students, but it also highlights unanswered questions. Concerns and questions that need to be addressed by further research in light of the results of this particular study include:

- What would the results of similar research look like if it were not restricted by the number of schools it could investigate as a result of having to meet a certain home school attendance criteria?
- We must determine whether the results of this study are present in comparable studies which investigate

the relationship for schools of smaller-size cities, or are these the findings of an atypical pattern?

- Why are results for District Y elevated at the middle grade ranges in an atypical convex relationship when achievement scores are plotted against school socioeconomic indicators? Does the absence of a K-2 program have anything to do with this outcome, or is there something else at work here?
- If the success in middle grades for District Y is in fact valid, what are the reasons for that success, and what can be done to replicate the results for other grade levels and for all schools?
- What real impact, if any, did integration and busing for District Y, and a liberal transfer policy for District X have on the net outcome of student achievement?;
- Are we able to uncover further evidence of strong and meaningful suppressor effects in multiple regression research? and
- More research on the interaction of poverty, school, family, neighborhood, and urbanization effects (a difficult and costly endeavor) would need to be conducted to fully understand the overall net effect of environment on achievement.

Other implications of this study which warrant further investigation include:

- Do differences in education programs and program delivery account for any of the differences between districts in studies of student achievement?
- Does teacher turnover, teacher preparation, and other under-examined school input variables have an influence on achievement results?
- Is there a difference in the nature and impact of peer pressure and street subcultures on the achievement of children from urban and suburban neighborhoods?

- What impact do television, contemporary music, and other media have on the achievement level and the motivation to achieve of children from all types of neighborhoods?
- What is the role of neighborhood crime and other indicators of severe social disorganization in the larger picture of academic disadvantage for inner-city students? (This is the one area that did not receive adequate attention for reasons beyond the control of this study).
- Following the line of thinking we obtain from mobility research (reviewed in section 2.73), can we say that certain aspects of urbanization exacerbate both the top and bottom ends of student achievement and child behavior?
- Is there is certain urbanization "threshold" which causes certain variables such as minority status and single parenthood to be more accentuated than if urbanization indices were at more moderate levels? and
- Is there an identifiable "threshold" or advantage-disadvantaged mixture school personnel and city neighborhood planners should aim for in their integration efforts?

One could make a case that schools, family environment, levels of poverty/socioeconomic status, neighborhoods, and levels and type of urbanization all have a joint mediating effect on achievement. Obviously more research on the interaction of these variables (a difficult and costly endeavor) will need to be conducted to fully answer this question. Lastly, we must determine whether the results of this study are present in comparable studies which investigate the relationship for schools of smaller-sized cities, or are these the findings of an atypical pattern?

5.7 Conclusion

The preceding analysis and review of literature make it clear that lower-class and underclass students are educationally disadvantaged, and that this reality could produce a host of problems for schools and the future career development of certain students. The potential impacts neighborhoods might have on that development and on academic achievement have too frequently been overlooked and underestimated.

This study finds that neighborhoods, whether defined in a broad or narrow sense, exert significant influence on the academic outcomes of students. We must also be mindful, however, that while some issues of academic advantage and disadvantage can be investigated in a neighborhood context, others must be viewed from a family/peer, as well as situational perspective.

APPENDIX SECTION

Appendix A

Achievement Score* Data by School Factor Analysis

Reading CAT 4 Score & School No.	Lang. CAT 4 Score	Math CAT 4 Score	Reading CAT 6 Score	Lang. CAT 6 Score	Math CAT 6 Factor	Total Achvmt Factor	4th Gr. Achvmt Factor	6th Gr. Achvmt Factor	4 & 6 Lang. Factor	4 & 6 Read Factor	4 & 6 Math Factor
District Y:											
1 - 52.00	58.00	59.00	52.00	69.00	49.00	-.43	-.25	-.40	.07	-.54	-.78
2 - 65.00	72.00	75.00	59.00	77.00	71.00	.62	.75	.59	.90	.31	.62
3 - 33.00	38.00	36.00	34.00	43.00	32.00	-2.07	-1.70	-2.08	-1.71	-2.16	-2.20
4 —	—	—	40.00	45.00	44.00	—	—	-1.54	—	—	—
5 - 67.00	74.00	81.00	70.00	81.00	81.00	1.11	.98	1.30	1.14	.92	1.21
6 - 89.00	92.00	86.00	82.00	94.00	94.00	2.25	2.08	2.35	2.32	2.37	1.90
7 - 59.00	63.00	76.00	61.00	66.00	66.00	.25	.41	.24	.13	.17	.45
8 - 49.00	60.00	60.00	51.00	59.00	62.00	-.41	-.26	-.36	-.27	-.71	-.22
9 - 75.00	85.00	87.00	54.00	62.00	62.00	-.65	1.57	-.19	.74	.46	.64
10- 48.00	50.00	55.00	59.00	72.00	65.00	-.25	-.63	.31	-.09	-.36	-.26
11- 72.00	81.00	83.00	55.00	63.00	71.00	.66	1.32	.10	.64	.39	.87
12- 64.00	68.00	59.00	54.00	67.00	61.00	.03	.30	-.08	.35	.03	-.30
13- 59.00	56.00	56.00	69.00	76.00	71.00	.29	-.18	.88	.29	.56	.07
14- 49.00	63.00	53.00	45.00	62.00	46.00	-.74	-.34	-.88	-.04	-1.00	-1.09
15- 63.00	71.00	74.00	65.00	74.00	79.00	.74	.66	.91	.74	.52	.91
16- 70.00	76.00	81.00	61.00	73.00	76.00	.85	1.10	.68	.88	.61	1.01
17- 39.00	56.00	48.00	52.00	64.00	66.00	-.58	-.87	-.10	-.20	-1.05	-.44
18- 76.00	84.00	94.00	68.00	82.00	87.00	1.57	1.72	1.42	1.54	1.18	1.87
19- 65.00	72.00	71.00	61.00	72.00	71.00	.55	.67	.52	.70	.41	.49
20- 38.00	50.00	30.00	42.00	55.00	48.00	-1.40	-1.41	-1.11	-.79	-1.58	-1.74
21- 71.00	82.00	71.00	61.00	75.00	78.00	.90	1.06	.78	1.17	.64	.77
22- 82.00	85.00	92.00	72.00	83.00	83.00	1.67	1.86	1.46	1.61	1.61	1.64

Reading CAT 4 Score & School No.	Lang. CAT 4 Score	Math CAT 4 Score	Reading CAT 6 Score	Lang. CAT 6 Score	Math CAT 6 Factor	Total Achvmt Factor	4th Gr. Achvmt Factor	6th Gr. Achvmt Factor	4 & 6 Lang. Factor	4 & 6 Read Factor	4 & 6 Math Factor
23- 56.00	59.00	68.00	55.00	58.00	61.00	-.20	.07	-.29	-.35	-.24	-.01
24- 89.00	92.00	97.00	84.00	92.00	93.00	2.36	-1.45	2.33	2.23	2.47	2.20
25- 78.00	81.00	83.00	65.00	77.00	81.00	1.24	-.37	1.04	1.22	1.11	1.27
26- 68.00	77.0	75.00	71.00	80.00	76.00	1.03	-1.96	1.17	1.20	1.01	.82
27- 53.00	57.00	63.00	56.00	62.00	70.00	-.12	-1.17	.08	-.25	-.31	.19
28- 56.00	63.00	44.00	75.00	84.00	82.00	.57	-.07	1.56	.87	.73	.07
29- 77.0	84.00	84.00	64.00	75.00	72.00	1.10	1.54	.72	1.25	1.03	.94
30- 37.00	38.00	43.00	41.00	51.00	43.00	-1.56	-1.45	-1.37	-1.38	-1.66	-1.53
31- 50.00	56.00	58.00	59.00	66.0	66.00	-.18	-.37	.18	-.12	-.28	-.13
32- 37.00	34.00	23.00	30.00	43.00	38.00	-2.18	-1.96	-2.05	-1.86	-2.20	-2.37
District X:											
33- 43.02	42.75	43.63	45.31	41.86	46.88	-1.42	-1.38	-1.38	-1.59	-1.22	-1.35
34- 58.67	56.68	59.53	57.33	59.42	62.52	-.21	-.14	-.14	-.37	-.02	-.22
35- 43.59	44.97	45.19	44.30	44.87	50.59	-1.30	-1.07	-1.23	-1.39	-1.24	-1.15
36- 51.53	48.54	54.50	60.18	56.56	62.92	-.45	-.58	-.12	-.78	-.16	-.36
37- 39.88	39.99	43.12	—	—	—	—	-1.32	—	—	—	—
38- 64.11	63.76	64.74	70.37	68.79	73.76	.51	.32	.80	.27	.83	.40
39- 38.38	40.17	42.95	42.14	42.04	52.58	-1.50	-1.36	-1.32	-1.68	-1.56	-1.15
40- 57.80	52.87	57.21	56.82	56.24	64.65	-.29	-.26	-.13	-.55	-.08	-.21
41- 61.91	60.14	65.65	60.91	59.71	64.76	.04	.20	.04	-.23	.28	.07
42- 59.76	56.15	62.65	61.50	60.78	67.48	-.01	-.01	.15	-.33	.22	.08
43- 47.99	48.03	49.72	—	—	—	—	-.78	—	—	—	—
44- 61.47	59.49	66.96	58.36	58.90	64.25	-.02	.20	-.08	-.29	.14	.09
45- 56.59	52.86	57.15	—	—	—	—	-.30	—	—	—	—
46- 57.02	55.52	53.68	48.29	49.87	51.14	-.74	-.29	-.97	-.81	-.52	-.86
47- 47.12	48.17	46.76	50.19	52.73	58.00	-.88	-.87	-.65	-.95	-.82	-.81
48- 60.40	58.93	60.84	—	—	—	—	.03	—	—	—	—

Reading CAT 4 Score & School No.	Lang. CAT 4 Score	Math CAT 4 Score	Reading CAT 6 Score	Lang. CAT 6 Score	Math CAT 6 Factor	Total Achievmt Factor	4th Gr. Achievmt Factor	6th Gr. Achievmt Factor	4 & 6 Lang. Factor	4 & 6 Read Factor	4 & 6 Math Factor
49- 64.24	63.45	67.63	65.93	65.75	69.38	.38	.38	.47	.13	.62	.32
50- 46.00	47.12	49.14	—	—	—	—	- .87	—	—	—	—
51- 52.70	52.13	53.38	58.24	56.25	61.13	- .46	- .49	- .23	- .66	- .21	- .47
52- 57.39	56.15	68.79	66.37	67.30	73.13	.27	.05	.62	- .06	.37	.50
53- 58.62	59.40	67.41	60.36	56.29	65.15	- .05	.13	- .06	- .40	.12	.14
54- 58.08	57.61	58.70	61.01	61.64	68.37	- .04	- .11	.19	- .24	.14	- .01
55- 42.12	41.14	39.71	51.10	47.62	54.34	-1.22	-1.31	- .85	-1.41	- .97	-1.18
56- 61.98	58.63	64.77	65.70	63.61	69.35	.21	.15	.41	- .13	.52	.22
57- 40.34	41.26	46.66	47.98	49.07	54.08	-1.20	-1.21	- .92	-1.35	-1.20	- .97
58- 54.50	54.98	57.87	67.68	66.94	71.49	.09	- .28	.61	- .12	.32	.09
59 —	—	—	47.19	46.84	47.19	—	—	-1.18	—	—	—
60 —	—	—	43.12	44.89	45.98	—	—	-1.39	—	—	—
61 —	—	—	49.75	51.01	54.18	—	—	- .81	—	—	—
Number Of Valid Cases											
59	59	59	56	56	56	52	57	56	52	52	52

* Achievement scores for schools 1-32 represent CAT-5 results. Scores for schools 33-61 are MAT-BBNC results converted to CAT equivalent scores.

Appendix B1 & B2:

Simple Correlations (r) For Separate District Relationships Using Dependent Variable Total Achievement Factor Score, With Various Independent Variables

Independent Variable	District X	District Y
Percent Poor	-.93	-.84
Student Mobility	-.71	-.82
Percent Minority	-.61	-.85
Log Pct. Minority	-.63	-.88

Zero-Order Multiple Regression (R^2) Coefficients For Separate District Relationships Using Dependent Variable Total Achievement Factor Score, With Various Independent Variables & School SES

Independent Variable	District X	District Y
Percent Poor	.84	.70
Student Mobility	.57	.66
Percent Minority	.37	.73
Log Pct. Minority	.49	.77
School SES Factor Score	.72	.84

Appendix C:

Cluster Analysis Of Alternate Neighborhood Type Using Various Census Variables

Cluster	Weighted	% Sparent (Various Cluster Centers)	% Povkids	Mobility	% Bcollar	% Wcollar	% NoHSdeg	% Bachplus
1	27	16.22	3.83	12.90	16.29	71.99	8.66	30.70
2	21	30.64	16.75	19.30	28.49	53.80	18.35	14.04
3	10	48.35	31.23	31.23	27.00	50.29	25.19	11.80

* Quick Cluster Method - Maximum Iterations 10 - Convergence Criteria .02 - 26 valid cases

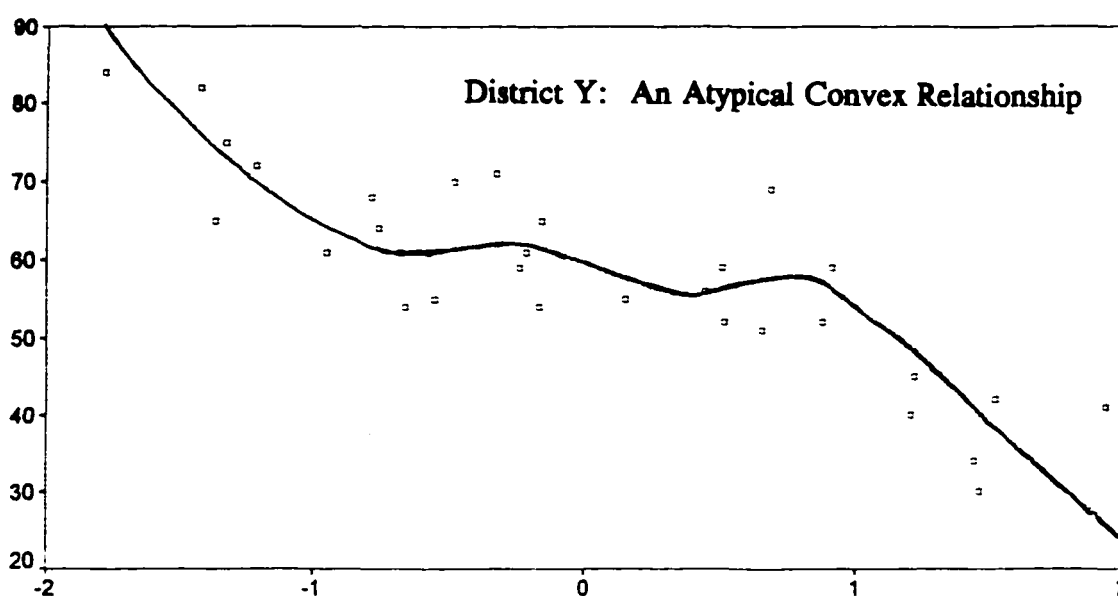
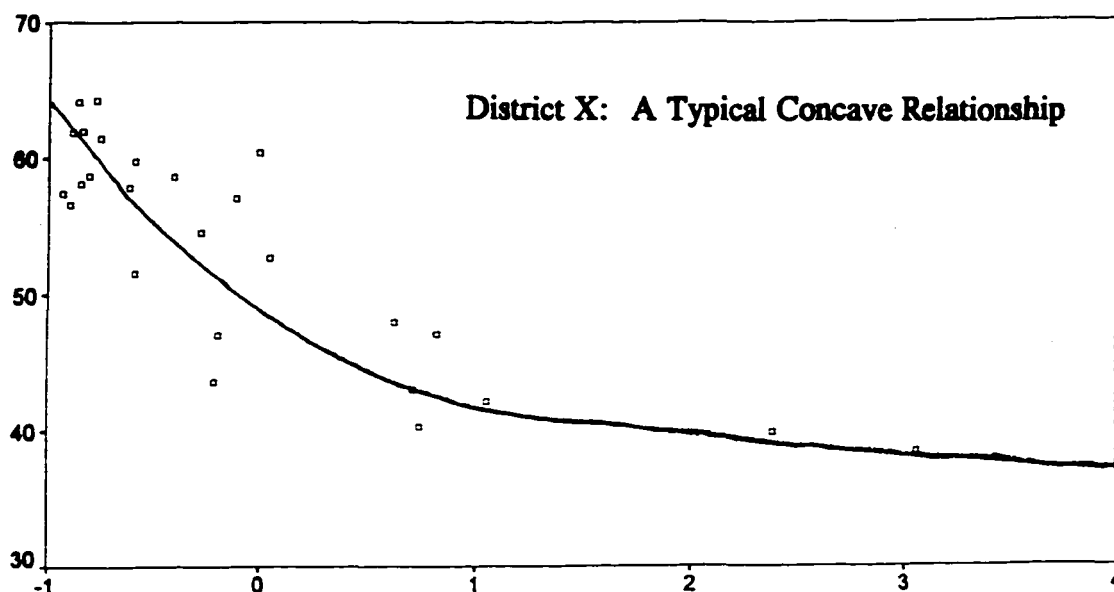
Appendix D:

Summary Of The Correlates Of The Unusually Effective Schools Research

- **Productive School Climate and Culture**
 - Orderly environment
 - Faculty commitment to a shared and articulated mission focussed on achievement
 - Problem solving orientation
 - Faculty cohesion, collaboration, consensus, communications, and collegiality
 - Faculty input into decisionmaking
 - Schoolwide emphasis on recognizing positive performance
- **Focus on Student Acquisition of Central Learning Skills**
 - Maximum availability and use of time for learning
 - Emphasis on mastery of central learning skills
- **Appropriate Monitoring of Student Progress**
- **Practice-Oriented Staff Development at the School Site**
- **Outstanding Leadership**
 - Vigorous selection and replacement of teachers
 - "Maverick" orientation and buffering
 - Frequent, personal monitoring of school activities, and sense-making
 - High expenditure of time and energy for school improvement actions
 - Support for teachers
 - Acquisition of resources
 - Superior instructional leadership
 - Availability and effective utilization of instructional support personnel
- **Salient Parent Involvement**
- **Effective Instructional Arrangements and Implementation**
 - Successful grouping and related organizational arrangements
 - Appropriate pacing and alignment
 - Active/enriched learning
 - Effective teaching practices
 - Emphasis on higher order learning in assessing instructional outcomes
 - Coordination in curriculum and instruction
 - Easy availability of abundant, appropriate instructional materials
 - Classroom adaptation
 - Stealing time for reading, language, and math
- **High Operationalized Expectations and Requirements for Students**
- **Other Possible Correlates**
 - Student sense of efficacy/futility
 - Multicultural instruction and sensitivity
 - Personal development of students
 - Rigorous and equitable student promotion policies and practices

Appendix E

Plots of Reading Achievement Scores
With School SES, And The Observance Of
Convex Versus Concave Relationships
When Comparing District X With District Y



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